

WILDLIFE CONSERVATION SOCIETY

Annual Report 1994



WILDLIFE CONSERVATION SOCIETY
FOUNDED IN 1895 AS THE NEW YORK ZOOLOGICAL SOCIETY

Wildlife Conservation Society

Annual Report for July 1, 1993 to June 30, 1994

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To Sustain Biological Diversity

To Teach Ecology

To Inspire Care

***International
Conservation***



Saving Wildlife and Inspiring Care

The purpose of the Wildlife Conservation Society, since its founding in 1895 as the New York Zoological Society, has been to save wildlife and inspire people to care about our natural heritage. Today, 99 years later, that purpose is achieved through the nation's largest system of urban zoos (the Bronx Zoo, the Aquarium for Wildlife Conservation, and the Wildlife Centers in Central Park, Queens, and Prospect Park), pioneering environmental education programs used throughout the United States, and the world's leading international conservation program devoted to saving endangered species and ecosystems. We are working to make future generations inheritors, not just survivors.

People and Wildlife in New York



Educating the Next Generation



The City of New York, through its Department of Cultural Affairs, provides part of the annual operating support for the Bronx Zoo/Wildlife Conservation Park and the

Aquarium for Wildlife Conservation, both of which occupy City-owned buildings on City-owned property.

The Wildlife Conservation Society administers the Central Park, Queens, and Prospect Park Wildlife Centers for the City's Department of Parks and Recreation, which provides annual operating support for the Centers.

The Society also receives annual funds from the Natural Heritage Trust, a program of the New York State Office of Parks and Recreation.

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* Elected at the October 19,
1994 meeting.

For the Children of Brooklyn, for the Children of Papua New Guinea

On October 5, the City's old 12-acre Prospect Park Zoo was reopened as a renovated conservation-oriented children's wildlife center in Brooklyn. On October 10, the Pacific nation of Papua New Guinea officially created its first major nature reserve, the 617,781-acre Crater Mountain Wildlife Management Area. The two sites, half a world apart, were both designed to serve people and conserve wildlife, and both were accomplished through the efforts of the Wildlife Conservation Society.

The Prospect Wildlife Center renaissance was the third and final piece in the Society's "annexation" of Parks Department zoos — a successful collaboration between the Society and the Department of Parks and Recreation that was initiated at the City's request. (The renewed Central Park and Queens centers were reopened in 1988 and 1992, respectively.) The result is the nation's largest urban system of living wildlife facilities, including the flagship Bronx Zoo and the Aquarium for Wildlife Conservation. Mutually reinforcing each other under the Society's aegis, the centers operate at a level of quality that they could not hope to reach alone. Once the most highly criticized zoos in the nation, the three centers are now educational assets and models of animal care.

The Crater Mountain reserve resulted from ten years of collaborative work with Papua New Guinea officials and local communities. It joins more than 100 major wildlife reserves and sanctuaries that owe their existence to WCS inspiration, guidance, and support, including 89,235,816 acres in 11 nations that have been protected in just the past four years.



William Conway and an Asian rock python in JungleWorld at the Bronx Zoo.

Ecosystem protection for forests and birds of paradise in Papua New Guinea and ecological education and recreation for children in Brooklyn is a natural connection for WCS. Others include educating savanna biologists in Kenya, Tanzania, and Zambia, training school teachers in the South Bronx and South China, propagating hundreds of nearly extinct species, and studying the interdependencies between elephant seals and fishing off the shores of Patagonia. Combined with the experiences of nearly 4 million visitors to WCS facilities, they describe a unique organization in its 99th year. Future directions are both clear and fascinating.

At 99, the breadth and influence of WCS's programs are at an all-time high. Locally, no other institution has expanded its public services so responsively. Through its five facilities in New York—led by the 265-acre Bronx Zoo, the finest institution of its kind—we have nearly doubled the people we reach in the past six years. Our great living collections here and at our rare animal breeding center in Georgia not only help to save endangered species, they also provide vital points of contact and education for millions of citizens who would not otherwise experience wildlife.

Natural Connections

Teaching the Nature of Science and the Science of Nature

WCS has developed the most comprehensive elementary and secondary school programs for urban children of any comparable institution in the U.S.—and they are desperately needed. One recent study ranks U.S. students near the bottom in a 15-country assessment of science achievement while others have found more than 67 percent of elementary science teachers and 71 percent of biology teachers ill-prepared to teach their subjects. With the recognition and help of the National Science Foundation, Bronx Zoo-designed science and biology curricula are now used in 42 states and several nations abroad.

Conservation Expertise

At the same time, WCS operates the most expert and extensive non-governmental conservation effort in the world. With more than 270 on-the-ground projects in 51 nations, we build on a tradition of leadership in the evolution of wildlife conservation thought, training, and methodology. Increasingly our leaders in the field are scientists and other conservation professionals working in their own countries, and often they assume positions of importance in government agencies crucial to the environment. In past year, for instance, Kenyan ecologist David Western, who for 20 years has led the WCS effort on behalf of elephants, rhinos, Amboseli National Park, and the entire African savanna biome, took leave to become director of the Kenya Wildlife Service at the request of President Daniel arap Moi.

The Next Century

Every informed person who loves nature and wildlife looks toward the future with apprehension. Never again will our living collections include passenger pigeons, Carolina parakeets, or thylacines. All were exhibited at the Bronx Zoo in its first decades. Chances of seeing a giant ibis or a velvet blue Spix macaw are increasingly slim, while Mongolian wild horses, Père David deer and a growing list of once common creatures now live mostly in zoos, even as

thousands of tiny lesser-known organisms vanish into nothingness each year.

Only the uninformed imagine that a majority of the natural communities of 1995 can be sustained, or those of 1895 restored. If much wildlife is to be kept alive for 2095, it will have to be deeply understood and intensively cared for, while its wild habitats are passionately defended. Most large animals that compete with humans for food, or big predators or fragile specialists, will persist solely in limited reserves cared for with zoo-derived technologies. Outside such reserves, only fauna compatible with human agriculture, manufacturing, and crowded living space is likely to survive.

For the present, there is still time to save vast numbers of magnificent wild creatures, to preserve beautiful and wondrous wild places now headed toward oblivion. But this can only happen if people are educated to care and if more and more of them are inspired to become wildlife conservationists—a new human role model. WCS is showing how it can be done.

We approach our next century with a triad of clear-cut tasks. The first is to serve and inspire the people of New York, those for whom and by whom the Society was founded in 1895. The second is to lead the battle for nature and wildlife with all the tools of education, field science, and political advocacy at our command. And the third is to provide a solid foundation for these tasks in our living institutions, from the Bronx Zoo, Aquarium, and Wildlife Centers to our far-flung conservation programs. With 100 years behind us, April 26, 1995, marking the Society's centennial, will again be the first day of that effort.

William Conway
President and General Director

The Society is one of several institutions founded toward the end of the 19th century—among them the Metropolitan Museum of Art, the New York Public Library, the New York Botanical Gardens, the Brooklyn Museum, the American Museum of Natural History, Carnegie Hall, and the Metropolitan Opera—that continue to define the cultural life of this city, and much beyond it. All are conservation organizations of one sort or another. All serve the nation's largest and most diverse urban population.

One distinction of the Wildlife Conservation Society is the number of people we actually reach. None of our sister institutions except the Branch Libraries of the New York Public Library has a larger attendance. During the fiscal year covered in this report, 3,766,415 people entered the gates of the Society's Bronx Zoo, Aquarium, and Central Park, Queens, and Prospect Park Wildlife Centers. Our science education programs involved more than 1.2 million schoolchildren, from kindergarten through the 12th grade, at all five facilities. More than 60,000 people are enrolled as members.

Another distinction is the Society's national and international scope. Our educational curricula reach across the United States and around the world. Our magazine, *Wildlife Conservation*, is sent to more than 200,000 subscribers worldwide. Our international conservation program conducts projects on five continents.

Finally, and uniquely, we are in the business of saving living wild creatures and their habitats, through our work here in New York and around the world. We protect and propagate thousands of species threatened with extinction, including lowland gorillas, snow leopards, birds of paradise, and Chinese alligators. We also help preserve their homelands and raise awareness among people here and those most directly affected abroad.

The sources of our support are as diverse as our programs and the people we reach. They are also vulnerable to economic conditions. Visitors to our parks supplied 29 percent of the revenues needed to run our local facilities and programs. This rep-

resents a drop of \$1.5 million under last year's figure.

Government revenues actually rose nearly \$4 million, due in part to the opening of the new Prospect Park Wildlife Center, though cuts were expected for the 1995 budget. Still, the value of the Zoo, Aquarium, and Wildlife Centers is recognized by City

legislators, executives, and agencies, and it is hoped that these figures will reverse with the City's fortunes.

Private support—from members, subscribers, individuals, foundations, and corporations—also increased, to \$16,880,282. This total involved well over 100,000 contributors, and there were some remarkable gifts that made it possible to establish new programs and to sustain crucial ones otherwise threatened by necessary cuts.

We are particularly grateful to the Lila Acheson Wallace Fund for the New York Zoological Society, which provided total grants of \$5,326,000 for the Wildlife Science Resource Center, Exhibition and Graphic Arts Department, Horticulture, Wildlife Health Sciences, Friends of Wildlife Conservation, and various improvement projects at the Bronx Zoo and Education, Horticulture, and improvement projects at the Central Park Wildlife Center. A gift of \$1.5 million from The Homeland Foundation created The Chauncey Stillman Chair in Wildlife Education in memory of our valued late friend and trustee. This is a tremendous boon to our internationally recognized education program.

The Society's general endowment was supplemented by a \$1 million gift from Enid A. Haupt, and major trustee donations were received from the Prospect Hill Foundation, thanks to Frederick W.



Howard Phipps, Jr. breaks ground for the Society's station at Middle Cay, Belize Barrier Reef, with John Vernon Miles of the British-based Lady Kinnoull's Trust, which funded the project.

Beinicke, for the Wildlife Crisis Fund, The Willard T.C. Johnson Foundation, Inc. for John and Terese Hart's work in Zaire and other international projects, Edith McBean Newberry for various projects abroad, Bradley Goldberg for the Grauer's gorilla project, Mr. and Mrs. Alexander Haig, Julian Robertson, Joan Tweedy through the Tortuga Foundation, Susan Lipton through the Zarkin Foundation, and Richard Perkin through the Perkin Fund. The Edward John Noble Foundation continued its outstanding support for the Wildlife Survival Center on St. Catherine's Island through the efforts of Frank Larkin and Bradford D. Smith. The estates of Harriet Roeder, Dorothy Hammond, Marjorie G. Bennett, Shirley S. Katzenbach, and John Martin Clegg also provided significant funds.

Education was particularly well served by donations from The Freed Foundation, the Aaron Diamond Foundation, the Samuel and May Rudin Foundation (and Jack Rudin), the Louis Calder Foundation, the Charles A. Dana Foundation, the Pinkerton Foundation, the Liz Claiborne Foundation, and the Chemical Banking Corporation.

Private donations to international programs were especially heartening. The John D. and Catherine T. MacArthur Foundation and the Liz Claiborne and Art Ortenberg Foundation renewed their support with major multi-year gifts. A grant from the L.K. Bosack and B.M. Kruger Foundation got the Society's Global Tiger Campaign on track, and other significant gifts were received from Lady Kinoull's Trust, the Bailey Wildlife Foundation, the W. Alton Jones Foundation, the Charlotte Wyman Trust, and the Weeden Foundation.

Two events rewarded the hard work of our leadership volunteers. Trustees Dailey Pattee and Stephen Friedman co-chaired "Centennial Prelude," the Society dinner-dance held at the Bronx Zoo on June 15. Nearly 500 people attended and more than \$750,000 was raised for our education and international programs. On the following day, the Conservation Council, co-chaired by Mrs. David Y. Howe and Edmund A. Moulton, held "An Evening at the

Central Park Zoo," which raised more than \$130,000 for Aquarium education and outreach programs.

As these events indicate, the Society's boards and committees have never been more active. Four new trustees were elected. John Chancellor of NBC News has for many years co-chaired the Patrons Campaign and helped the Society in countless additional ways. Dr. Murray Gell-Mann, Nobel Prize winner for physics in 1969, has become a major voice for conservation. John N. Irwin III served for many years on the board of advisors and has a special interest in marine ecosystems. And Michael Steinhardt, a commodities trade consultant, is known for his dedication to the enhancement and protection of the City's parklands.

A tremendous upsurge in national and international interest and involvement is reflected in the appointment of 16 new advisors. Barry Bowen owns the Chan Chich Lodge in Belize. John D. Goldman, William A. Newsom, and Helen Spalding are business and community leaders in San Francisco. John Denver is the world-renowned singer and songwriter from Colorado. Art Wolfe is the distinguished nature photographer from Seattle. Joseph P. Allen is CEO of Space Industries International, Inc. in Washington, D.C. Vickie Jordan Adams, Robert Alvine, Elizabeth Munson, Jonathan Rinehart, Jeffrey A. Sachs, Irwin Segelstein, Craig Taylor, Ann Unterberg, and E. Lisk Wykoff, Jr. are prominent in the New York corporate and professional community. Ex-officio advisors Mrs. David Howe and Edmund Moulton are our new co-chairmen of the Conservation Council.

Special thanks are extended to our trustees, members, and other friends for being generous partners in the business of saving wildlife and serving people. We have formed a truly collaborative effort to which business, government, and private individuals all contribute in their own ways.

Howard Phipps, Jr.
Chairman of the Board of Trustees

People and Wildlife in New York

In the Bronx, Manhattan, Brooklyn, and Queens, the Wildlife Conservation Society operates the world's largest system of urban wildlife sanctuaries, serving a metropolitan New York constituency of 20 million people and visitors from around the country and the world. The Wildlife Survival Center on St. Catherines Island, Georgia, is devoted to breeding endangered species and establishing free-ranging groups of animals for possible reintroduction in their native habitats.



The only troop of rare proboscis monkeys outside Asia lives in the Bronx Zoo's JungleWorld.

Bronx Zoo/Wildlife Conservation Park

Central Park Wildlife Center



Wildlife Theater dramatizes animal lore and conservation in Central Park.

Queens Wildlife Center



The American bison, which the Society helped save from extinction, sets the North American theme in Queens.

Prospect Park Wildlife Center



Hamadryas baboons are featured in Prospect Park's World of Animals.

Aquarium For Wildlife Conservation



"Sharks Alive!" broadens the Aquarium's public conservation and education message.

Saint Catherines Wildlife Survival Center

Rescued gopher tortoises were successfully released on St. Catherines Island, Georgia.



Bronx Zoo/ Wildlife Conservation Park

The Wildlife Conservation Society's flagship and headquarters, the Bronx Zoo, opened in 1899 and has since welcomed more than 200 million visitors. With nearly 4,000 animals, many of them representing endangered species and habitats, the zoo is an international center for conservation action, education, and awareness, serving the public and saving wildlife.

MAMMALS

The arrival at the Bronx Zoo in 1929 of a tall, tusked pig called the babirusa was little noted. There were other, more celebrated animals entering the collection that year, including two gelada



Throughout May 1994, visitors to the World of Darkness saw Mephistopheles, an aye-aye on loan from the Duke University Primate Center. These tiny prosimians from Madagascar are highly endangered.

baboons, two snow leopards, and four musk-oxen. But by the time the lone babirusa died in 1940, he had been named Jimmy and was quite popular with the public.

Today this unusual swine is endangered in its native Sulawesi and neighboring islands, where the rain forests are being rapidly destroyed. In response, we began breeding the species in 1985, and now Bronx-bred babirusa are in several North American zoos, with the largest group (15 animals) residing in the Bronx.

Their natural home at the zoo is Wild Asia, and in May two adjoining exhibits and a management facility were established for them there, between the Kanha Meadow for blackbuck and axis deer and the

Khao Yai Reserve for Asian elephants. Four more babirusa were born during the year.

The life of Timmy, our famous 35-year-old lowland gorilla from Cleveland, continued to flourish at the Great Apes House. The birth of Okpara to Pattycake last July 11 made Timmy the oldest known male gorilla father in a zoo. More of his offspring are expected. In a troop with five other gorillas, the 430-pound Timmy has proved to be gentle and protective, particularly with the two-year-old males Husani and Babuka. Triska also gave birth during the year, in February, to a male fathered by Congo.

With the recent transfer of two proboscis monkeys from the Stuttgart Zoo in Germany, accomplished by Collections Manager Fred Sterling, the Bronx Zoo now has the only group of this endangered species outside of Asia. The Society has focused attention on the species for some time, through field projects in Sarawak, Borneo, and a history of care for more than 30 years at the zoo. It is hoped that measures can be taken—perhaps a breeding program in Sarawak—that will help address the twin



problems of underrepresentation in zoos and loss of habitat in nature.

Protecting keepers is the purpose of a new way of managing elephants at the zoo. Most zoos, including the Bronx, have used traditional methods requiring close contact with the animal. Though wonderful to watch, such close contact has resulted in accidents in many places over the years, some of them fatal. Retraining for elephants and keepers involves both sustaining the keeper-elephant relationship and maintaining a safe barrier between the two, with the elephants responding to the keepers in exchange for rewards.

BIRDS

Renovation at the World of Birds continues under Curator Christine Sheppard's direction, thanks to the generosity of The Wallace Fund. Last year's three new forest environments stressed habitat destruction and conservation. This year's weaver-

bird exhibit, scheduled to open in August, stresses the fascinating behavior and environment of these builders of elaborate nests. The new space replaces



Intern Ulysses R. Rosenzweig observes flamingo behavior at the Bronx Zoo as part of the Colonial Waterbird Research Project.

three smaller exhibits. Boulders and a streambed, a termite mound, trees and the lush grasses and bushes of the African savanna fill the space, which spills into the viewer's area and extends back over a hill into a landscape diorama painted by David Rock. The birds are constantly active. Prize-winning graphics, overhead here as in the forest environments, ask and answer basic questions about the birds' behavior. Next comes an unusual bird of paradise exhibit, set to open in January, which will provide a link for the public between our important conservation work in Papua New Guinea and our unique behind-the-scenes breeding program.

Aspects of the waterbird facilities and exhibits planned for the zoo's northwest corner began to take shape, thanks to funds provided by the Annie Laurie Aitken Charitable Trust and the Jeniam Clarkson Foundation. Working with groups of interns, college and post-graduate students from throughout the city, Research Associate Susan Elbin gathered valuable information about flamingos,

In an educational show called Skyhunters '94, Steve Martin entertained thousands of visitors to the Bronx Zoo from the end of May to September with behavioral demonstrations by Victoria, an African fish eagle, and several other raptor species.



scarlet ibises, boatbilled herons, Inca terns, Guanay cormorants, pelicans, and other zoo species that may help improve breeding performance and our understanding of how to fulfill the physical and behavioral requirements of these species in exhibits.

Meanwhile, plans were undertaken for the first breeding modules to be used for Marabou storks. The ultimate goal of the waterbird project is to coordinate our research at the zoo with that of scientists studying these species in the wild, and to bring this work and the spectacle of these magnificent birds to the zoogoing public. Breeding will be one aspect of the project, but as important will be the development of data that can be used in their conservation and the excitement of public interest.

REPTILES AND AMPHIBIANS

The department responded to a number of crises, including several emergency snakebite calls, and provided its expertise to wildlife and law-enforcement agencies. In mid-spring, the destruction of a healthy gopher tortoise colony by the development of an industrial park in

Statesboro, Georgia, was averted when 76 of the tortoises were rescued by the Georgia Department of Natural Resources. Curator John Behler was asked to formulate a relocation and monitoring plan, and the St. Catherines Wildlife Survival Center was chosen as the refuge site. Collaborating in the rescue were the St. Catherines Island Foundation and the Society's Wildlife Health department.

Behler's tortoise work continued in the Kirindy Forest of western Madagascar, where he returned in early 1994 to radio-track critically endangered flat-tailed tortoises. At Muscote Farm in Westchester County, he identified winter hibernating and summer nesting sites for spotted turtles and is designing a management plan for the species. Superintendent Bill Holmstrom's work with the three-year study of anacondas in Venezuela was completed, with 300 animals being identified, including a 17-foot, 225-pound female.

Samantha, our 22-foot-long reticulated python from Borneo, gained 80 pounds since arriving in the Reptile House in March 1993. A pair of bushmasters, the New World's largest venomous snake, was added, along with two lizards rarely seen in zoos: the frilled dragon and the Merten's water monitor, both from Australia.



Wildlife Survival Center

Last year the Center on St. Catherines Island, Georgia, provided sanctuary for avian refugees of Hurricane Andrew from Miami's Metro-zoo. This year, two rescue missions were carried out. One was the gopher tortoise mission described



Rescued gopher tortoises are released on St. Catherines Island by island Superintendent Royce Hayes, Senior Veterinarian Bonnie Raphael, and Herpetology Curator John Behler.

above. Monitoring the group of tortoises at the northern end of St. Catherines Island has begun and, except for a few long-range travelers, most of the animals are excavating burrows in and around the release site.

Another cooperative project saved several near-fledgling wood storks from the ravages of windstorms at Byrdsville near Augusta, Georgia. Those sent to the Center for rehabilitation were released to join up with several resident fledglings

and migrate with the local flock.

The island's three free-ranging primate troops, which are unique to this facility, were particularly successful in breeding during the year, with the ring-tailed lemurs producing six young, the ruffed lemurs two, and the lion-tailed macaques one.

Center personnel are developing nest boxes, using whiskey barrels, that might help hornbills to breed in Asian forests, where they are severely endangered. The elaborate breeding behavior of hornbill species requires large nest cavities in wide primary forest trees, which are being cut down at an alarming rate. Installing nest boxes in secondary forest might increase the rate of reproduction. The Center has been successful in breeding three hornbill species using this technique.

New species received at the Center were flat-tailed tortoises from western Madagascar, in conjunction with a field project conducted by Herpetology Curator John Behler, and Maxwell and bay duikers from Africa. The first lesser kudu was born at the Center after most of the bachelor herd was dispersed and single females arrived from the St. Louis and San Antonio zoos. Their breeding is important because of the low numbers of the species in zoos.

Sharon Reilly, former assistant curator at the Central Park Wildlife Center, joined the staff as associate curator, and Robert Lessnau as primatologist. Administered by the Society's animal departments at

Okpara's Birthday

On July 28, 1994, the western lowland gorilla Okpara made his debut a little more than a year after his birth at the Bronx Zoo. It was a special occasion, celebrating the first offspring of 35-year-old Timmy from the Cleveland MetroParks Zoo, and the continued success of the Bronx Zoo's breeding effort, which is crucial to the AZA's national Species Survival

Program for this threatened species.

Timmy's move to the Bronx was the subject of controversy and lawsuits when animal rights activists claimed he had a low sperm count, wouldn't get along with other gorillas, wouldn't breed, and, therefore, should remain in Cleveland with the sterile female gorilla he had been with for 16 months. Okpara,

whose first name means "first son" in Swahili, and his mother Pattycake, of Central Park Zoo fame, put previous doubts to rest.

Joining Okpara (far left) were caregivers Louisa Gillespie and Caroline Atkinson, a birthday cake donated by nearby Egidio's in the Bronx, and Little Joe, born to Triska, also last year.



Late News: With the birth of identical twins (above) to Pattycake on August 8, Timmy continued to flourish in his new role as father.

the Bronx Zoo, the Center continues to be completely supported by the generosity and staff of the St. Catherines Island Foundation, through Trustee Frank Y. Larkin and Advisor Bradford D. Smith.

Aquarium for Wildlife Conservation

Major improvements were underway at the heart of the Aquarium through much of the year. At the Aquatheater, stadium seating was being doubled and reversed so that visitors will see not only our behavioral performances of marine mammals but the rockwork and plantings of Sea Cliffs and the Atlantic Ocean beyond. Completion is due in 1995. The beluga



For "Sharks Alive!" at the Aquarium, stationary shark fins tell part of the story of shark ecology and conservation.

whale's Oceanic Tank, where a new filtration system and newly polished acrylic windows are being installed, is scheduled for a fall 1994 reopening.

The Aquarium's rehabilitation facilities for stranded marine animals worked perfectly for a female pilot whale. Rescued near Mamaroneck Bay on August 4, 1993, the whale was cared for by Aquarium staff for eight months, successfully treated for pneumonia by Wildlife Health staff, and released in the Atlantic from a Coast Guard boat on April 9, 1994. A special exhibit titled "Whales—Stranded and Rescued," with paintings by the prominent wildlife artist Richard Ellis and a videotape of the pilot whale's care, was shown at the gallery in Discovery Cove during this period.

Another exhibit—"Sharks Alive!"—was opened to extend the experience and message of the

90,000-gallon Shark Tank. Visitors can touch cow-nose rays at the Touch-A-Ray Pool, and dig up shark fossils at "Can You Dig It." Inside Discovery Cove, the movements of sharks and rays and the myths and truths about them are explored in videos, interactive devices, and other interpretive and graphic displays, including a section on "Sharks and Mankind."

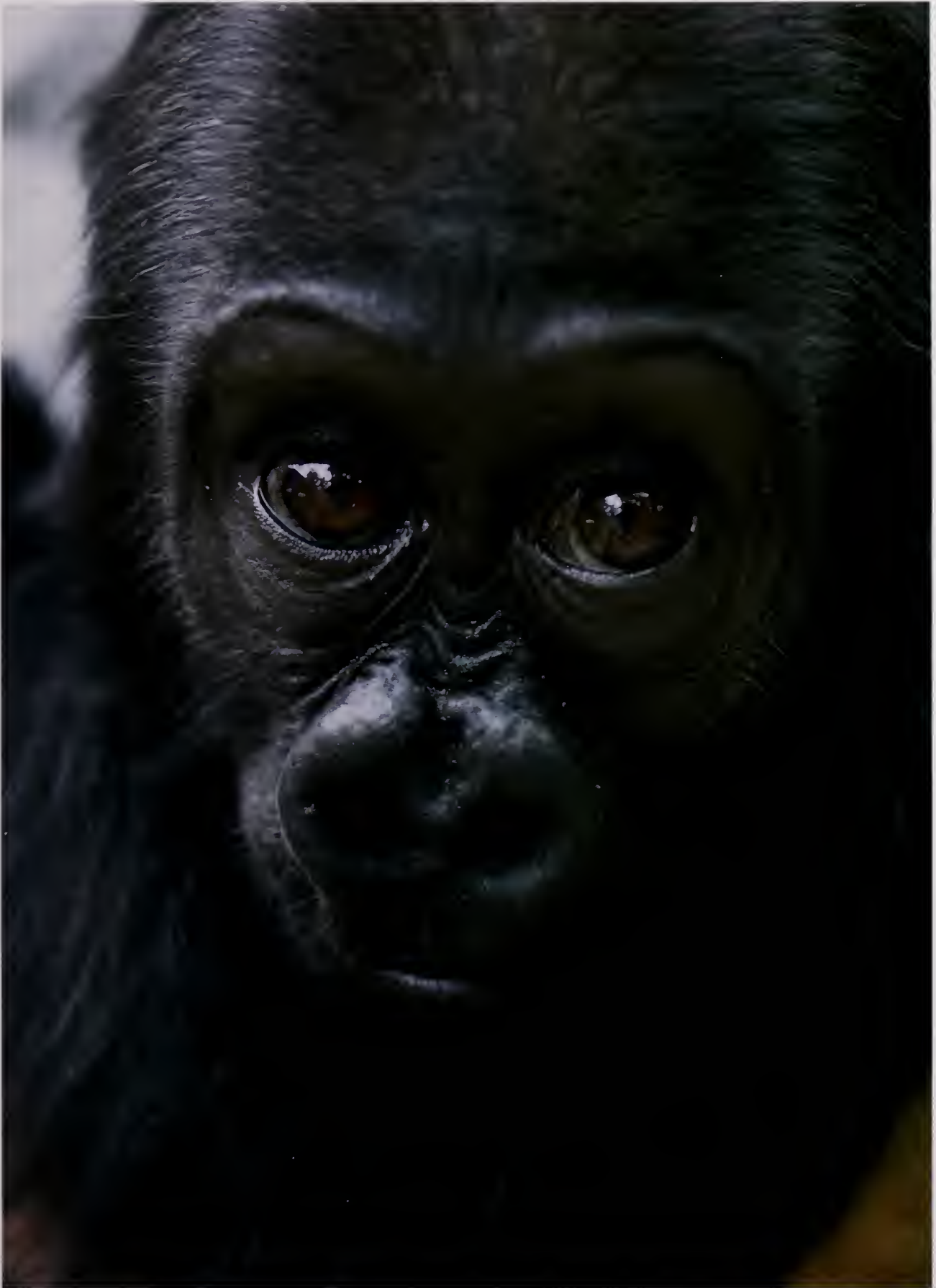
Changes also occurred in the Aquarium's volunteer leadership. After 17 years of steadfast guidance, Society Trustee and Vice President Henry Clay Frick II stepped down as chairman of the Aquarium and Osborn Laboratories Planning Committee, the work of which was completed with the opening of Sea Cliffs. Formed in its place is the Aquarium Marketing and Support Committee headed by Advisor Craig Taylor.

Orphaned walrus, one male and two females, arrived at Sea Cliffs from the village of Gambell on St. Lawrence Island, Alaska, in May. They were brought in by Curator Paul Sieswerda and Director of Training Kevin Walsh, with the help of Veterinarian Paul Calle and Laboratory Manager Kate McClave, by special arrangement with the Alaskan Walrus Eskimo Commission. The Aquarium hopes to start a walrus breeding group and, through connections now established with the Yupik people, to influence conservation initiatives in the Bering Strait.

Coral research begun by Dennis Thoney at the Osborn Laboratories of Marine Sciences in 1991 is being conducted in a nearly completed lab where 35 species of coral are being maintained. Some were placed on public display in Conservation Hall, and ultimately the coral studies will link up with international Society conservation efforts in nature.

Under Deputy Director Paul Boyle, the Osborn Labs has also begun a long-term plan to address the rapid decline of the oceans, which threatens major fisheries, aquatic species, coral reefs, and precious coastal habitats worldwide. The Critical Ocean

Okpara, one-year-old son of lowland gorillas Timmy and Pattycake.



Wildlife Recovery Initiative (COWRI), developed by Boyle, Aquarium Director Louis Garibaldi, Science Resource Center Director Fred Koontz, and International Policy Analyst Dorene Bolze, will include programs in basic and applied research, public awareness and education, and ocean policy, in tandem with the Society's field-based conservation work.

Paul Loiselle traveled again to Kenya's Yala Swamp to help save cichlid fishes threatened by overfishing, habitat destruction, and the introduction of Nile perch and water hyacinth. Endangered cichlid species are being maintained for possible future release in a restored habitat.

Central Park Wildlife Center

Several enhancements were aimed at providing a more complete educational and visual

experience for the public, partly with major funds from The Wallace Fund. A narrative added to the three daily sea lion feedings helped answer questions always asked by visitors about feeding procedures and behavior. A similar routine was introduced for penguin feedings in the Edge of the Ice Pack. And gardens were added around the center to complement the various zones and their conservation messages. Native ferns were planted at the northwest side of the pond, and tropical plants flourished near the Tropic Zone, to be transferred inside during the winter.

Enrichment was also directed to the animals themselves, through the work of an expert hired to help make the daily lives of polar bears, primates, and other species more varied and interesting. New approaches were also introduced at the Bronx Zoo and the Queens and Prospect Park wildlife centers.

Breeding programs produced the first captive-hatched chinstrap penguin, named Sasha, the Center's first red-crested cardinal, triplet cotton-top tamarins (contributing to a Species Survival Program), two black-and-white colobus monkeys, and dendrobatid frogs of three species.

The Wildlife Gallery had a particularly busy season, with shows devoted to the drawings of Graham Harris ("Marine Mammals of Patagonia"), the Society

of Animal Artists ("Wildlife Artists 1993"), pastel drawings by Bob Ziering ("Twilight of the Gorilla"), and photographs of "The National Parks of Venezuela."

In March, the administration of all this activity fell to Dan Wharton, the Center's new director after fifteen years as a mammalogist and curator of animal management services at the Bronx Zoo. He was joined by Assistant Director Laura Maloney, who is also curator of education, and by new Associate Curator Anna Marie Lyles, who had been assistant curator of birds at the Bronx Zoo.

The Center's North American theme was enhanced by an outstand-

Queens Wildlife Center

ing new exhibit between the prairie dogs and the bears. An injured female American bald eagle was



Three American bison were born during the year at the Queens Wildlife Center.

rescued in Alaska after colliding with a small plane. In Queens, nine tons of stone and more than 50 trees—giant arborvitae, Colorado spruce, and white pine—were used to create an environment for the eagle replicating its natural habitat. She was named Claire, after Queens Borough President Claire Schulman, and on June 30 her new home was dedicated by the Center's director, Robin Dalton, and the borough president herself.

Next door and some months earlier—February 2 to be exact—one particular prairie dog had become a celebrity known as Flushing Meadow Phil. Emerging from a scale model of the Center's front gate, and surrounded by TV cameras, journalists, and politicians, Phil seemed to predict an early spring to Parks Commissioner Henry Stern and the assembled throng. His appearance ignited an "inter-burrow" media war with Staten Island Chuck as to whom the mayor would endorse as official New York weather prognosticator.

For six weeks last summer, seven students from John Bowne High School pulled weeds and watered plants as part of a summer intern program. Paid by the Board of Education's Training Opportunities Program, they provided invaluable help in combating the drought, providing the Society with 1,260 man-hours of work. The program was enthusiastically renewed in the current year.

Prospect Park Wildlife Center

The fifth and final facility in the Society-operated system of public wildlife centers in

New York City opened on October 5, 1993, in a dedication led by Brooklyn Borough President Howard Golden, whose support was crucial to the realization of this project. The antiquated Prospect Park



Prairie dog tunnels allow visitors a close-up view at the Prospect Park Wildlife Center, reopened under WCS management on October 5, 1993.

Zoo was completely renovated, with a far greater variety of small animals replacing large mammals ill-suited to the twelve-acre site. Sea lions still bark in the redesigned sea lion pool, around which are ranged the half-circle of Depression-era buildings, but everything else has been changed.

Planned especially for children, the new exhibits are based on the Society's national educational programs. The World of Animals is an outdoor ramble where children can climb into oversized bird's eggs in an oversized nest, crawl through prairie dog tunnels, and even walk with the animals in Wallaby-Walk-About. Animal Lifestyles explores life in the water, in the air, on land, and underground, with such species as rock hyrax, red tree squirrels, and Burmese pythons. Dramatic habitats for cotton-top tamarins and hamadryas baboons provide a chance to study primate group behavior, reproductive strategies, and parental care. In Animals in Our Lives, children can sketch meerkats, saw-whet owls, emerald tree boas, white-throated monitors, red-eyed tree-frogs, praying mantises, and a variety of fishes and other species. Exhibits here also focus on how to care for suitable pet species such as parakeets, hamsters, and guinea pigs.

Initial design phases for the Society's most ambitious exhibition, conservation, and teaching project to date—the Bronx Zoo's six-and-a-half-acre Congo Rainforest and Environmental Education Center—were completed in collaboration with David Helpert Architects and construction advisors Humphreys and Harding.

Exhibition & Graphic Arts

Elaborately replicated segments of one of the earth's major rainforest ecosystems will draw visitors into the evocative thickets, canyons, and meadows of lowland gorillas, mandrills, and other endangered primates, forest hogs, okapi, Congo peacocks, and tiny forest antelopes. The landscape will be full of clues and information about the ecology of the forest and its wildlife, and visitors will ultimately pass through a Conservation Theater where the Society's efforts to save the forest will be detailed.

Entrance fees will be used to support these efforts directly, and zoogoers will vote individually on how their contribution is to be spent.

Hidden at the heart of the forest will be the three-story Environmental Education Center, headquarters of the Society's innovative education department. There will be special environmental classrooms where what happens outside, in the living forest, is crucial to what is learned inside. Educators will come here from around the world to learn about teaching conservation biology and to



Exhibit Specialist Jean Kolody helped create graphics about the rain forest and green turtle nesting for the Environmental Education Center at Tortuguero, Costa Rica.

use the Center's extensive video, computer, and other resources. The goal is to create a new kind of zoo exhibition that connects the public with field conservation and establishes an educational foundation that makes the connection effective.

On the site of the old bear dens and Penguin House, work funded by the City's Department of Cultural Affairs was begun on a visitor picnic area overlooking the Kodiak bears' habitat. Alaskan tall grasses and willows were planted along with berrying shrubs, with a fallen tree linking the animal and people areas.

Based on historic photos, parts of the interior of the Administration Building were restored, a new meeting room was created called The Lila Acheson Wallace Room, the Library was moved to an

improved area across the hall, and curatorial offices were moved upstairs to more spacious quarters, where the new Science Resource Center and intern offices are now also housed.

In the Caribbean, the department completed an interpretive center for the Caribbean Conservation Corporation at the green turtle nesting site at Tortuguero, Costa Rica, and began research facilities on Middle Cay, the Society's outpost at Glover's Reef on the barrier reef of Belize.

The Zoo's plant inventory grew from 800 to over 1,000 species. Many were the result of additions to existing habitats. In Himalayan Highlands sixteen plant species native to western China and the Himalayas were added. New *Hypericum* shrubs in the Baboon Reserve suggest the St. John's-wort tree of Ethiopia. A tropical bamboo forest clearing was created for the new babirusa exhibit in Wild Asia, and extensive improvements were made in the Angkor Forest and elephant exhibits there.

With the completion of the Wildlife Imaging Suite at the Wildlife

Wildlife Health Sciences

Health Center, Dr. Robert A. Cook and his veterinary staff now have an even wider range of diagnostic tools. Included are a mammography unit donated by Standard Medical and new radiography and lateral tomography machines. The ultrasound machine this year detected pregnancy in the beluga whale Natasha at the Aquarium and in a babirusa, both of which successfully produced offspring.

The Aquarium's beluga whale patriarch Newfy died at the age of 23 after a long struggle with chronic kidney disease. Another kind of cetacean, a female pilot whale rescued near Mamaroneck Bay, was saved from pneumonia, an E. coli bacteria that proved resistant to most available antibiotics. Finally, she was cured by Lorabid, a new product donated by the Eli Lilly Company, and returned to the sea after months of treatment and recovery.

Senior Veterinarian Dr. Bonnie L. Raphael bandages a crane at the Bronx Zoo with the help of Wildlife Keeper Susan Leiter.

For the third year support and direction were provided by the Wildlife Health Sciences Committee, which meets four times a year under Chairman and Trustee Mrs. Joseph A. Thomas to consider health and science matters.

Clinical responsibilities increased with the opening of the Prospect Park Wildlife Center. Dr. Barbara Mangold was added as a resident in clinical medicine, and Dr. Mark Stetter became assistant clinical veterinarian under Dr. Paul Calle, who directs health care at the City wildlife centers and the Aquarium. A regimen of preventive, clinical, and surgical care was begun at the Prospect Park center under Veterinary Technician Annette Gonzalez, this time to include fish as well as mammals, birds, reptiles, and amphibians.

At the Bronx Zoo, where she is in charge of health care, Senior Veterinarian Dr. Bonnie Raphael worked with the department of ornithology in the first successful artificial insemination of a Manchurian crowned crane. New methods were also developed in conjunction with the department of herpetology to determine the sex of several species of turtles.

Training was the key activity in pathology. Department head Dr. Tracey McNamara traveled to Taiwan, where she delivered more than 40

hours of lectures on zoo and wildlife pathology at the National University, the Taipei Zoo, and the Pig Research Institute for the Council of Agriculture. She also helped plan future training efforts there. In the Bronx, three scholarships were awarded by the American College of Veterinary Pathologists and the Charles L. Davis Foundation to students participating in zoo-based pathology training programs. The Society's share in the joint pathology program with the Animal Health Center was supported by Wildlife Health Sciences Committee members Caroline N. Sidnam and Pamela M. Thye.

International collaborations flourished in the nutrition department, under Dr. Ellen Dierenfeld. Visiting scientist Liu Zhenmei from China analyzed food samples eaten by Guizhou snub-nosed monkeys. Jocke Nijboer, nutritionist at the Rotterdam Zoo, studied our diets for four Southeast Asian leaf-



eating primates as compared to diets used in other North American and European zoos. Field samples processed under Laboratory Supervisor Marianne Fitzpatrick included the blood of Chinese wading birds, giant pandas, pancake and gopher tortoises, and leaves and fruits eaten by a host of Tibetan and Indonesian species.

With equipment donated by Perkin Elmer, Inc., through the efforts of Trustee Richard Perkin, mineral analyses of whole prey were completed for the Peregrine Fund, minerals in rodents used as feed by the Society were evaluated, and calcium nutrition in the Aquarium's sea otters was examined. Special diets were developed for Mauritius echo parakeets (the world's rarest parrot), carmine bee-eaters, aye-ayes, and walrus babies.

VETERINARY FIELD PROGRAM

As head of field veterinary studies, Dr. William Karesh undertook 27 projects around the world, including the first examinations of the health of endangered Humboldt penguins in coastal Peru, macaws in the Peruvian Amazon, Magellanic penguins in Argentina, caiman in Bolivia, and savanna buffalo and kob antelope in Zaire. His work is supported, in part, by the Pfizer Foundation.

Of particular interest was the assistance given to Claudio Campagna and Rodolfo Werner in using satellite transmitters to track the foraging behavior of South American sea lions and their conflicts with commercial fishing operations off the Patagonian coast. At Punta Tombo, the gathering of baseline health information on the populations of Magellanic penguins was begun, and strategies were discussed to start doing the same for other wildlife exposed to environmental disturbance and human encroachment.

Dr. Karesh's works in Zaire's vast Garamba National Park with the Zaire Wildlife and Parks Department (IZCN). Because disease can be a particular problem for ungulates in this buffer area near Sudan, work on the health monitoring program was begun with the fairly plentiful populations of buffalo and kob, several of which were immobilized for examination and testing. Collaborating are the U.S. Department of Agriculture, Nutritionist Dr. Ellen Dierenfeld at the Bronx Zoo, Cornell University, the University of Michigan, and geneticist Dr. Nicolas Georgiadis.



Science Resource Center

This new Society department, headed by former mammal curator Fred Koontz, takes over the functions of animal management services, with a greatly expanded emphasis on the role of new technology and science in conducting and coordinating zoo and field conservation programs. Lectures and workshops will be complemented by the research and development of new tools and facilities for Society biologists. The Analysis and Technology Development Laboratory, for instance, will have computer workstations with sophisticated software with which animal managers, educators, field biologists, and wildlife keepers can analyze and visualize their scientific data to generate new conservation solutions. Especially helpful in the department's evolution is the Species Survival Fund established by The Freed Foundation, which has already been applied to 14 WCS projects, from research on the deadly Aspergillosis fungus in birds to a study of the genetics and conservation of the spotted turtle in Westchester County.

The Conservation Genetics Program, directed by George Amato and by Dan Wharton before he became director of the Central Park Wildlife Center, received its second Institute of Museum Services award to study DNA fingerprinting and other genetic techniques to improve methods for managing herd and colonial species in zoos. A new project

got underway to assess the distribution of genetic variation in anacondas being studied by field scientists John Thorbjarnarson, Jesús Rivas, and Maria Muñoz in Venezuela.

Twenty-two wildlife keepers and seven other staff members graduated from this year's keeper training course, coordinated by Joanne Oliva-Purdy, bringing the total graduates to 130 since the program began in 1986. A workshop on improving spoken and written communication skills was conducted for ten veteran keepers by Timothy O'Sullivan, deputy director of administrative services.

The computer database of detailed animal records, compiled by Registrar Nilda Ferrer, along with Helen Basic, Stephen Davis, and Elba Pino, now totals more than 25,000 individual accounts, including historical records dating back to 1898. Permits were obtained and arrangements made for 157 animal shipments, including seven international ones, involving 1,008 animals, many of them involved in interzoo cooperative breeding programs for endangered species.

In April the Society's scientific library, directed by Steven Johnson, was moved to more spacious quarters in the Administration Buildings East. Johnson also supervised a pilot electronic mail project that has already extended the possibilities of communication among scientific staff and with researchers worldwide.

A Pilot Whale Returns to the Sea

After seven and a half months of professional veterinary care at the Aquarium for Wildlife Conservation and a steady diet of fresh capelin, herring, and squid, the rescued pilot whale #NY 1078-93 was released back into the Atlantic Ocean 35 miles southeast of Fire Island Inlet. "It's not my day, it's her day, and the oper-

ation appeared to have a sort of remission to it," said Director of Training Kevin Walsb, who was responsible for her daily care at the Aquarium.

Beginning at 5 a.m. on April 9, 1994, the whale was transported on a flatbed truck from the Aquarium to Canarsie Pier, where she was transferred to a 180-foot Coast



Guard buoy tender. Aboard the vessel were Aquarium staff (far left), staff of the collaborating Okeanos Ocean Research Foundation, and 48 crew members, as the 11-foot, 1,300-pound cetacean slid into the cold Atlantic waters at 1:40 p.m.

Educating the Next Generation

Environmental education programs at the Society's Bronx Zoo, Aquarium, and three wildlife centers reach 1.2 million schoolchildren in metropolitan New York. Comprehensive Society wildlife curricula for all grades are also used in 42 states and several nations abroad, including China, Belize, and Kenya.

States where Society curricula have been adopted are colored green.

"We feel that the use of these materials [Pablo Pytbon] will enhance the children's ability to observe and think analytically. It will also increase their awareness and interest in protecting the natural environment."

*Ye Yin Kang, Principal
Zhong Hua Primary School
Kunming, Yunnan Province,
China*



"You walk away from this program [WIZE] with a greater appreciation of the entire animal world and how important the balance really is."

*Carol Adamson,
Clark High School,
Las Vegas, Nevada.*

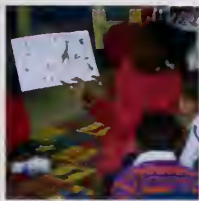
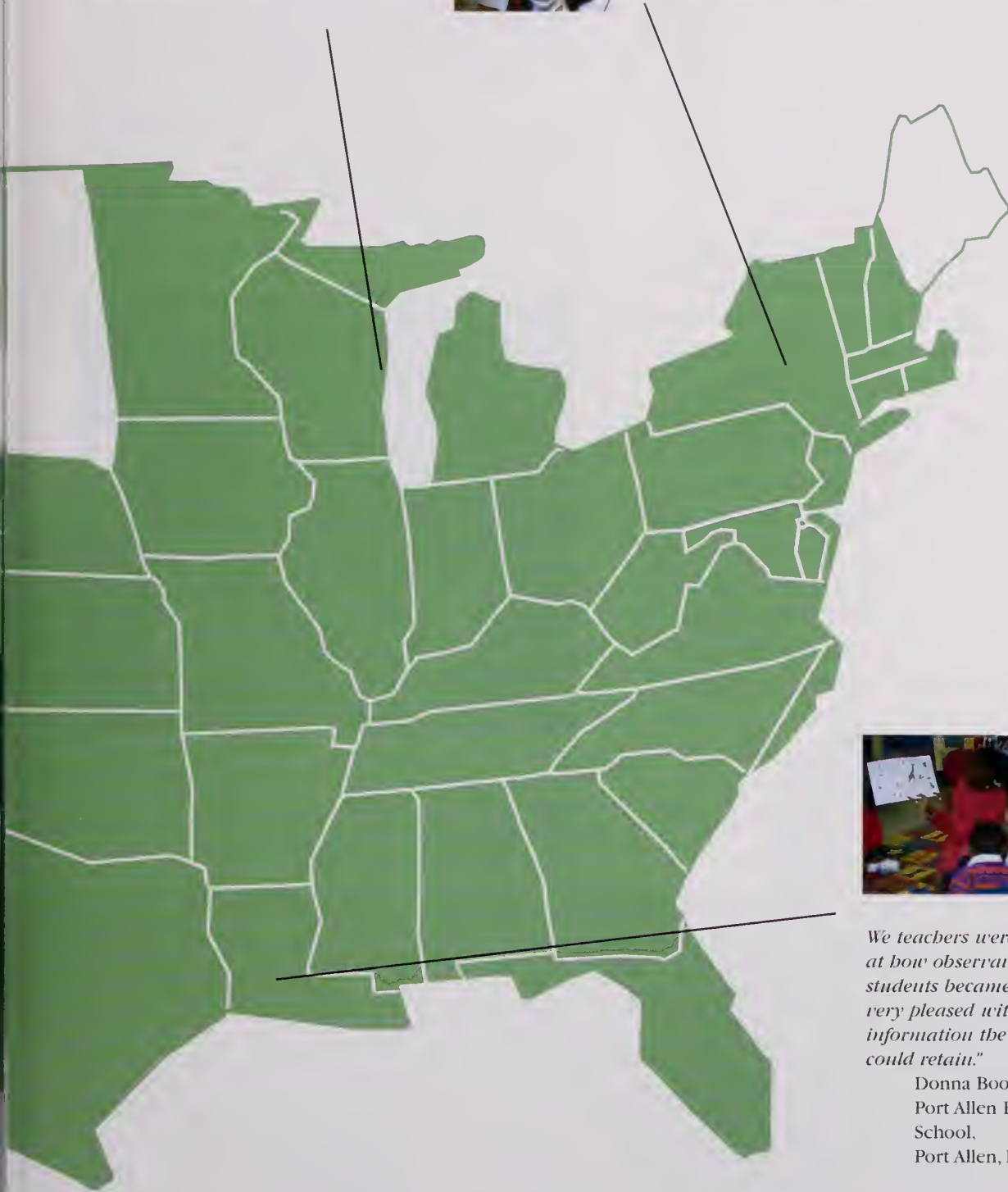
"Kids love the activity-based, high-interest participation format! It's been a joy to teach."

David Allerheihgin,
St. John Lutheran School,
Milwaukee, Wisconsin.



"I have never see such enthusiasm and joy in my students. . . . New ideas and methods are always appreciated in our profession."

Diane Marzec,
Public School 88,
Ridgewood, New York.



We teachers were amazed at how observant the students became. I was very pleased with the information the students could retain."

Donna Bookman,
Port Allen Elementary
School,
Port Allen, Louisiana.

National and International Programs

While Wildlife Conservation Society programs continued to catch on across the country, the big education story took place in China. In March, Supervisor of Secondary Education Tom Naiman and former Assistant Director Ann Robinson conducted two seven-day training programs for 70 teachers and wildlife professionals in Kunming, the capital of Yunnan Province. These sessions were based on two Society curricula, *Pablo Python Looks at Animals* for grades K-3 and Module I of *Wildlife Inquiry through Zoo Education (WIZE)* for grades 6-9, both of which had been translated into Chinese. Robinson then stayed on for two months to monitor and evaluate the use of the programs with more than 3,000 Chinese students.

During the workshops, teachers learned about factors affecting the disappearance of wildlife in China and visited Kunming's markets and pharmacies to identify wildlife products for sale. They also made field trips to the Kunming Zoo, where they learned how to use live animals to teach science and conservation. Collaborating in this groundbreaking project are the Kunming Institute of Technology, the Education Commission of Yunnan Province, the Kunming Zoo, the Forestry Department of Xishuangbanna, and the Xishuangbanna Tropical Botanical Garden. Management will be relinquished to Chinese educators as the program progresses over the next few years.

In the U.S., more than 5,000 teachers took part in WIZE awareness workshops at the Miami MetroZoo, the Las Vegas Zoological Park, the Dallas-Fort Worth Zoological Park, and other sites. The program now reaches 163,000 students in 39 states. *Pablo Python* is being used by more than 57,000 students in 15 states. A parent's handbook has been produced to encourage parental participation in the program.

The zoo's third national curriculum—the *Habitat Ecology Learning Program (HELP)* for grades 4-6—is now in its last year of development



During the Winter Wildlife program in December 1993, Robert Pictou of the Micmac Nation in New Hampshire led children at the Bronx Zoo in a snake dance and taught them about the Indian creation myth and survival techniques in winter.

Pablo in Louisiana

Pablo Python Looks at Animals, created by the Bronx Zoo's Education Department, begins at the beginning, with colors, shapes, patterns, and other basic ideas. Designed to introduce children from kindergarten through the third grade to wildlife, the curriculum is being used in 15 states and several nations

abroad, but nowhere has it been more enthusiastically received than in Louisiana. Since Pablo was first adopted there in 1991, more than 200 schools around the state have signed up for the program.

When Coordinator for National Dissemination Julie Gantcher visits in fall and spring, she is in great demand

for information and training. "It's been a real savior," says Louisiana State Coordinator Breuda Argo, "bringing biology into our science programs in the earliest grades. Kids love the program. One of the zoo people in Baton

Rouge is continually amazed at how much the Pablo kids know about animals, and how much ahead of other kids they are."

Children gain a new respect for the wildlife that is all around them in many parishes—all-



and will be published in spring 1995. Fourteen zoos and 133 teachers from 22 states and Puerto Rico have participated so far, with encouraging results. Both *Pablo* and *HELP* are partly supported by the Liz Claiborne Foundation. *Expanding Horizons*, the summer seminars for teachers from around the country, were supported by the Aaron Diamond Foundation. After a class visit to the zoo in Columbus, Ohio, the *HELP* teacher wrote, "We had a truly educational experience, rather than a day away from the classroom. Even my low-achieving students were eagerly participating."

Another major project, being created with the department's first grant from the U.S. Department of Energy, is the *Living Systems Energy Module*, a fifteen-session classroom unit designed to teach students in grades 4-9 the major ways in which energy is important to living systems. More than 100 teachers have helped develop the module and more than 40 have tested prototype elements in their classrooms.

Education staff reached 5,822 teachers at workshops, awareness sessions, and conferences around the country. At the Bronx Zoo, 811 teachers learned about Society activities from the education staff and resident wildlife experts, including Colleen McCann discussing her study of gelada baboons and John

Thorbjarnarson on his work with anacondas in Venezuela.

For the third year, Girl Scouts were selected from various states to attend courses devoted to wildlife careers and animal care and management. Another project, sponsored by the New York City Mathematics Project at Lehman College, introduced 100 elementary and secondary teachers to using the Zoo to teach mathematical principles. And workshops for parents in the low-income Phipps Houses next to the Zoo encouraged community participation in the Zoo's educational activities, thanks to a grant from The Louis Calder Foundation. The overall education program received support from the Chemical Banking Corporation, among other contributors.

Interns from around the country—20 college students or recent college grads chosen from a pool of 100 applicants—assisted at the Zoo in teaching and developing new programs. The program, called the Rudin Teaching Fellows, is supported by the Samuel and May Rudin Foundation and Jack Rudin

Bronx Zoo Education

gators, opossums, armadillos, and other species—and for more exotic creatures in the state's three zoos. But *Pablo* is also effective in the inner city and adjacent areas such as Port Allen, west of Baton Rouge, where the program is avidly used by

teachers and students in the elementary school (right).

Pablo is also widely used in New York State, where it is the single most frequently adopted curriculum in any subject.





to encourage new teaching talent in New York City. A special program for elementary school students—Close-up on Africa—was created by Laura Giordano, a sixth-grade science teacher from Junior High



Classes in JungleLab offer a view from within the Asian forest of JungleWorld, and unusual encounters with tarantulas and other creatures..

School 45 in the Bronx who spent her sabbatical at the Zoo.

In the spring the Zoo hosted the federally funded Star Schools Project's Satellite Field Trip, in which selected school systems produce live, interactive television programs for elementary students. Students from P.S. 205 in the Bronx participated in zoo education programs while other students in New York, Dallas, Philadelphia, and Washington, D.C. watched live and could call in questions to zoo staff. Another video project was the 18-minute "How to Behave Like a Gelada Baboon," produced with the media services office to show students how biologists observe and record animal behavior.

A new self-guided tour of the Bronx Zoo, titled *Working to Save Wildlife*, informs visitors about what the Society is doing, at home and abroad, to ensure the survival of species that can be seen in the zoo. Spanish versions of the two most popular tours—*Animal Families* and *JungleWorld*—were published, and a braille version of our tours of JungleWorld and the Children's Zoo were produced in collaboration with the Lighthouse for the Blind.

Proboscis monkeys in JungleWorld, where students can observe animal behavior at close band.

Friends of Wildlife Conservation, numbering 265 volunteers, gave free guided tours to 28,978 schoolchildren and adults during the year and helped in general audience programs for 3,291. They set up 26 biofact and mini-talk stations in the zoo for the 1993 Greater New York Girl Scouts Jamboree in October, providing conservation education for 5,000 attendees. Their Hospital Outreach Program reached 1,496 patients and residents of hospitals and nursing homes, and their conservation slide show was presented to 1,515 people at 23 church groups, rotary clubs, and senior centers.

Students from special education high schools joined marine biology students from Brooklyn's

Aquarium Education

South Shore High School in Project Octopus, which is funded by the New York State Council on the Arts. This program offers in-depth courses at the Aquarium and field study in local marshes, on the water, and at the Fulton Fish Market. Its possible expansion was studied in a workshop by special

The Science at Sea program, led by Instructor Bob Cummings, takes students from P.S. 110 in Brooklyn to sea to study marine organisms aboard the Dorothy B. out of Sheepshead Bay



education teachers and high school supervisors.

Physically challenged students from P.S. 396 in Brooklyn touched sand and held seashells for the first time while learning about the life of the sea and



The Aquarium's Touch-a-Ray Pool enhances the experience of learning about cownose rays and their environment.

shore. After the nine sessions, one teacher reported, "I have rarely seen such diverse groups of students learning together so effectively and effortlessly as I have in this program."

Spanish graphics were made for bilingual

families and school groups visiting the Hudson River Exhibit and programs associated with it. A grant from the Hudson River Foundation funded a workshop for the city's bilingual coordinators, and seventeen elementary school classes from Brooklyn attended a variety of hands-on programs that engaged non-English speaking students.

Some 750 seventh-graders from Staten Island studied invertebrate zoology through live animal handling, dried specimen investigations, and microscopic explorations, thanks to a grant from the Toshiba America Foundation. For many it was their first experience in a major aquarium.

In a model program devoted to environmental awareness, the Aquarium now conducts classes for violators of the Federal Wetlands Act who are identified by the Department of Environmental Conservation. After a day at the Aquarium exploring marsh and other coastal exhibits, handling artifacts and live animals, and learning about conservation and government guidelines, many participants

express new attitudes and increased concern for the wetlands.

The Gallery Guide program, which has high school students teaching intermediate school students, enjoyed a new technological twist. On live interactive video-telephone, the beluga whales were heard in nine countries while students from I.S. 210 in Queens shared their thoughts on endangered species and habitats. This global exchange focused student attention on ocean pollution and its effects on all sea life.

A new approach has been launched to both inform and entertain casual visitors.

Now when they enter the gates, they are given a schedule of events for the day. At the Wildlife Theater near the Sea Lion Pool they can see, five or six times a day, a variety of live performances inspired by what the animals eat ("Great Chefs of Central Park"), color and camouflage ("Color Me Animal"), adaptations to cold ("Cold Weather Gear"), and other subjects. When the sea lions are fed, visitors are treated as well to a narra-

Central Park Wildlife Center Education





"Great Chefs of Central Park" is one of several daily educational performances in Central Park's Wildlife Theater.

tive about feeding behavior and why the animals behave the way they do. And around the zoo, volunteer Wildlife Guides give five-minute Wildlife Chats on the animals in four exhibits: red pandas, polar bears, penguins, and snow monkeys.

In Storytime, the volunteers also read to children, reaching 4,887 of them during the year. Wildlife Guides now number 120 strong. They gave a total of 13,121 hours and provided one-and-a-half-hour tours for 2,657 people. Our nine-week training course graduated 65 guides.

New courses included the "Wine and Cheese Evenings with the Experts" (Society staff speaking about conservation) and the "New Year's Overnight" (a children's educational adventure that involved the invocation of New Year's resolutions for wildlife in the Penguin building). Six hundred ninety-nine people enrolled in our general courses and 3,431 students in our school courses.

In keeping with the center's theme, its education program focuses on North American wildlife. During the year some 1,200 elementary schoolchildren enrolled in such classes such as "Magnificent Mammals" and "Feathered Friends." Girl Scouts and toddlers had their own special programs, and general classes emphasized a different animal or habitat each month.

Public events included "Howl-O-Ween at Queens," featuring our version of a haunted barn, and "Bison Bonanza," which attracted 2,500 visitors in June to storytelling, games, educational presentations, country music by Savannah Sky, and Tex-Mex food.

The Wildlife Guide program grew to 28 volunteers. They helped with presentations at the Kissena Park Summer Festival and the Arbor Day Festival at the Queens Botanical Garden. They also joined guides from other Society facilities at Environmental Fun Weekend in the World Financial Center. Fifteen high school students from Queens and Brooklyn formed another volunteer group during the summer.

Even before the center

opened in October, the educational effort began with a group of 20 volunteer guides, who conducted preview tours for members and VIP visitors. Now this growing group staffs exhibit areas with interpretive carts, helps run public events, and assists in workshops.

By November, the center was offering workshops every Saturday and Sunday for the general public, pre-school classes during the week, and fourteen program topics—including animal behavior, camouflage, the food chain, and spiders and snakes—coordinated with the various school programs, from kindergarten through high school. Overnight programs and a few adult workshops have since been added.

High school interns have been on the job since the fall, trained as guides and receiving academic credit for their work. Students from

Queens Wildlife Center Education

Prospect Park Wildlife Center Education

Brooklyn College and the Bank Street College of Education assisted the teaching staff and helped with program planning.

Wildlife Conservation Magazine

Despite plenty of competition, the Society's flagship publication added 50,000 new readers and won eight national awards for excellence in design. Editorial coverage ranged from a story about de-horning rhinos in Africa, to an interview with Secretary of Interior Bruce Babbitt, to a single-topic issue examining ecotourism, an increasingly important element of many conservation programs.

In September/October, long-time contributor Edward Ricciuti describes efforts to save Africa's dwindling rhino populations, which are killed for the presumed medicinal value of their horns. Kenya and South Africa protect them with reserves and anti-poaching units. Poorer countries de-horn rhinos, but Society scientists Joel Berger and Carol Cunningham discovered in Namibia that horns grow back quickly and must be cut every year. In addition, rhino calves born to de-horned mothers die within a year, in this area at least, presumably because they can't be protected from predators.

In November/December, Secretary Babbitt talked about his top priorities with frequent magazine contributor George Nobbe. He is particularly concerned with renewal of the Endangered Species Act, establishment of the National Biological Survey, and raising fees in some national parks to control visitation.

The turn to ecotourism as an income-producing industry was explored in the entire March/April issue. Among the areas considered were Kenya's Maasai Mara National Reserve, where a Society research team is studying the impact of tourism; Peru's Manu National Park and Biosphere Reserve, which are managed primarily by indigenous people, many of whom work on Society field projects; and Argentina's Península Valdés, where Society scientists have been studying the effects of tourists on elephant seal and whale behavior for many years.

May/June focused on the 1991-92 controversy over the decision to move Timmy, a 33-year-old gorilla, from Cleveland, where he was unable to reproduce, to the Bronx Zoo, where he sired his first offspring in 1993. Other highlights included reports on new research in hippo communications, the U.S. government's continued "war on wildlife" in the

American West (in three parts, by John G. Mitchell), the golf industry's use of water and pesti-



WIZE in China

In December, the Society signed a landmark agreement with the Educational Commission of Yunnan Province and the Kunming Institute of Zoology in China to establish a wildlife conservation program there. WCS field scientists were already working with Chinese



Two of Wildlife Conservation's popular issues during the year.

cides and its alteration of natural habitats, the collapse of Newfoundland's codfish industry, and efforts to reintroduce beavers to restore overgrazed waterways.

The magazine's staff also produced *Wildlife*, the Bronx Zoo's visitor newspaper and guide, which receives partial support from The Chase Manhattan Bank.

colleagues on a number of conservation projects in the province, which harbors the country's last remaining rain forest and 50 percent of its wildlife species. The new cooperative effort is the first between Chinese education officials and a private conservation organization.

By March, materials from the Wildlife Inquiry through

Zoo Education (WIZE) and Pablo Python Looks at Animals, created at the Bronx Zoo, had been translated into Chinese. Supervisor of Secondary Education Tom Naiman and former Assistant Director Ann Robinson then began two months of training wildlife professionals and teachers from 70 primary and secondary schools in Kunming

and throughout the province. The program inspired great enthusiasm in teachers and students alike, as lessons were adapted to focus on local flora, fauna, and culture.

Zhu Weibna, Vice Director of the Educational Commission of Yunnan felt that the collaboration would "add momentum to the ambitious program of the Yunnan government to

improve the education quality of the Province." WCS Vice President for Education Annette Berkowitz, who spearheaded the collaboration, stressed the importance of protecting "valuable cultural and biological assets in China. As future decision-makers in the new China, it is vital that today's children understand the importance of wildlife."

International Conservation

Across the planet, WCS scientists in the field gather the scientific data needed to solve ecological problems. Staying for the long term, we work closely with local communities and government agencies to create strategies that will answer the needs and aspirations of people as well as the requirements of wildlife. Essential to the effort are educational programs that raise environmental awareness and training programs for conservation professionals working in their own countries. The year's 264 WCS projects around the world are represented by triangles.



Honduras. Flower-growing is part of a multiple-use program in the cloud forest.



Argentina. The deep dives of elephant seals for food are being radio-tracked in Patagonia.



Congo Republic. Michael Fay heads the Congo Forest Conservation Project.



Papua New Guinea. Clans meet to create new reserve at Crater Mountain.



Tanzania. Local conservation professionals are trained in national parks.



The Wildlife Conservation Society now runs some 270 field projects in 51 countries. Some are large "Integrated Conservation and Development Projects," or ICDPs in the lingo, supported by international development agencies, which seek to change the relationship between people and wild areas. Others are focused studies of little known



Grauer's gorillas, found to be plentiful in a survey led by Jefferson Hall (left) are now threatened by Rwandan refugees in eastern Zaire.

species, animals like the babirusa or woolly tapir. Still others are surveys to the ends of the wild world—the highlands of eastern Zaire or the forests of northern Burma. Many are perilous to life and limb. Many expose our fieldworkers to organisms that puzzle and fascinate the medical profession. Some actually deal with the health

of wildlife populations (see Veterinary Field Program, p. 18). All take corners of nature and, working with local peoples, make them into sanctuaries for wildlife.

We are intensely proud of our field conservationists. And we are equally proud of the men and women who support their efforts, who inform and direct various initiatives, and who are there when emergency or civil strife hits. These generally unheralded people work in New York, Gainesville, Nairobi, Belem, and Brazzaville, among other places. All have field experience, and that perspective helps them appreciate the importance of backup in remote places. Katherine Jepson makes contact with a field team through the labyrinth of Guatemalan bureaucracy; Bill Weber mobilizes a medical evacuation team in Cameroon; Martha Schwartz moves money through the mysterious channels of international finance to where it is needed; John Payne debriefs a frustrated Chinese colleague—these are the people who make all that follows possible.

In exceptionally difficult conditions, Jefferson Hall led a survey of Grauer's gorillas (the first census since George Schaller was there 30 years ago) and other large mammals in eastern Zaire's Kahuzi-Biega National Park. The international and Zairian team found that the protected core area has higher gorilla densities than expected, but that hunting and forest clearing are severe elsewhere in the area. The hope is to reinforce protection in and outside the park. Pledges by trustees Bradley Goldberg and Edith McBean Newberry made the census possible.

John and Terese Hart intensified their botanical studies in Zaire's Ituri Forest and began new inventories of large mammals and human use, with support from Robert Wood Johnson IV and the Willard T. Johnson Foundation. In the Okapi Wildlife Reserve, which the Harts were instrumental in establishing, Bryan Curran, the Society's first conservation anthropologist, began his work, supported by World Bank funds. With his Zairian counterpart, Richard Tschombe, Curran compiled socio-economic data, including human census figures, and helped residents around the reserve to establish 30 village committees which will communicate with the Zairian parks department about reserve management.

Though the outbreak of civil war forced Robert

Africa



and Cheryl Fimbel, directors of the Nyungwe Forest Conservation Project, to leave Rwanda in April, some work continued under Administrative Assistant Jonathan Uzabakiliho. While USAID now has terminated their operations in the country, the Society will continue to provide basic support for the project.

On Madagascar's Masoala Peninsula, the Society was invited in March by CARE International to run the conservation component of a conservation-development project funded by USAID. Claire Kremen, with Vincent Razafimahatratra, has collected baseline biological data and trained Malagasy students there for some time and she is now charged with designing a national park, a wildlife monitoring system, and buffer zones for sustainable economic activities in one of the island's largest and richest rain-forest blocks, where many new and rare endemic plants and animals have recently been discovered.

In West Africa, the Cameroon Biodiversity Project, also funded by USAID with help from the Liz Claiborne and Art Ortenberg Foundation, has been expanded under James Powell and his Cameroonian colleagues, Leonard Usongo and David Nzouango, into the Banyang-Mbo region, where villagers are being encouraged to become involved in resource management and revenue-generating ecotourism activities. Tribal laws against hunting chimpanzees,

elephants, and other wildlife were reinstated, and the government intends to declare Manyang-Mbo as the first community forest reserve in Cameroon. Biological inventories were completed in Banyang-Mbo and Mawne River Forest Reserve in the southwest.

Epini red colobus monkeys, possibly a new subspecies, were seen and photographed by John

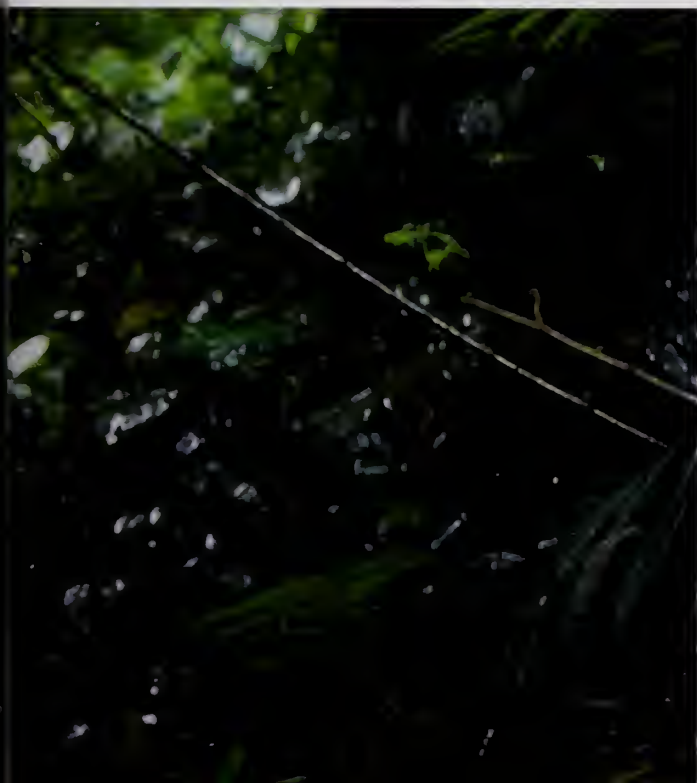


Entomology interns collect insects in Tarangire National Park as part of the six-year Biodiversity Assessment and Training Program in Tanzania's national parks.

Oates and colleagues in four different areas of swamp forest in the Niger Delta, which is heavily exploited by oil companies. Oates is exploring opportunities to work with the Nigerian Natural Resources Conservation Council to develop a long-term research and conservation project there.

Marine projects flourished in East Africa. Jesse Hillman began developing and supervising an applied marine research, training, and advisory program in the newly independent nation of Eritrea. Working with the ministry of marine resources, he is helping establish sound management of the fisheries and marine ecosystem on which the Eritrean economy depends.

At Mombasa, Kenya, the six-month Regional Coral Reef Internship Program was initiated by Tim McClanahan to train African biologists and managers in coral reef research, monitoring, and management. In March, McClanahan and Kenyan colleagues recorded the largest coral-bleaching event since the monitoring program began in 1986, indicating that



Project Coordinator Michael Fay's surveys in Congo Republic resulted in the creation of the 1,500-square-mile Nouabalé-Ndoki National Park.

East Africa may provide an early warning for such events.

The Society and the American Museum of Natural History began the six-year Biodiversity Assessment and Training Program in Tanzania's national parks, collaborating with the parks, the University of Dar es Salaam, and the Tanzanian Commission for Science and Technology. Directed by the Society's Patricia Moehlman and Michael Klemens, the program will strengthen in-country capacity to develop conservation policies based on sound scientific information.

Director of Strategic Planning David Western was appointed director of the Kenya Wildlife Service by the president of Kenya in March. A Kenyan citizen, Western has been involved in community-based conservation work in Amboseli National Park for the past 27 years. Helen Gichohi now directs the Society's program in Kenya, where a new project to assess the conservation needs of the famed Maasai Mara Wildlife Reserve has been funded by the W. Alton Jones Foundation.

Latin America

The year began with an August regional meeting at Samaipata, Bolivia, hosted by Andrew Taber.

María Elfi Chaves from Colombia conducted a strategic planning session for the 25 participants, and workshops were conducted on wildlife monitoring, field training, large project administration, and pro-



Conservation science workshops train university students in Colombia and throughout northern South America.

ected area management. The meeting fostered inter-regional connections among our people, many of whom share similar objectives and problems.

Taber himself has been completing wildlife inventories in the Rios Blanco y Negro Wildlife Reserve, working with the Bolivian Forest Service to develop a management plan for the reserve. He has also been important in advocating the new Chaco National Park in southeastern Bolivia. Dr. Damian Rumiz will lead the biodiversity component of the multi-year USAID-funded BOLFOR project, which will determine the effects of selective logging on wildlife in the Bolivian Amazon lowlands.

María Elfi Chaves will help design a master plan for the national park system of Colombia, including research and training programs for parks staff. In the high Andean forests of Colombia, Gustavo Kattan and Carolina Murcia began studying the effects of deforestation and habitat fragmentation on crucial

Paseo Pantera (Path of the Panther)

The Central American Biotic Corridor, called Paseo Pantera, will become a reality. All seven Central American nations—Belize, Guatemala, El Salvador, Nicaragua, Honduras, Costa Rica, and Panama—have agreed to create an unbroken protected area the length of the isthmus,

encompassing tropical forests and coastal habitats from the border of Mexico to the border of Colombia. Paseo Pantera, under which important conservation projects are already conducted throughout the area, was jointly developed by the Wildlife Conservation Society and the Caribbean

Conservation Council, and is sponsored by the U.S. Agency for International Development.

The U.S. government endorsed the Corridor on October 12 in Managua, Nicaragua, when Vice President Albert Gore signed the CONCAUSA treaty with the



Possible location of conservation corridor

INTERNATIONAL CONSERVATION



Paseo Pantera is leading the nascent conservation effort in Honduras, which includes such multiple-use projects as flower production in the cloud forest.

ecological processes such as seed dispersal and pollination by birds and butterflies.

In the high forests of Ecuador, models for resource management and community involvement are being developed under the Sustainable Use of Biological Resources (SUBIR) project, funded by USAID. Working with sister organization EcoCiencia, Latin American Director Alejandro Grajal heads the research and monitoring component, which has completed baseline biological inventories and initiated training programs for field personnel, including local community leaders who will be responsible for long-term monitoring. A five-year grant from the John D. and Catherine T. MacArthur Foundation will fund new projects to protect the sensitive cloud forest biomes of both Colombia and Ecuador.

The Lake Mmirauá flooded forest project in Brazil is now in full swing under José Márcio Ayres. Four floating houses, including a four-story structure for 20 people and a lab, are in place. Protection against illegal hunting and fishing is being effectively coordinated with IBAMA, the government environment agency. Along with faunal and floral surveys—including radio-tracking of freshwater dolphins and manatees—studies are devoted to fisheries, subsistence hunting, indigenous agriculture and forestry, logging, and community welfare.

Working with INPARQUES and EcoNatura to strengthen Venezuela's national parks, the Society has trained more than 100 park rangers and superintendents in the two-year program, and is using them and Venezuelan biologists to monitor wildlife. The Weeden Foundation provides valuable support, as does Edith McBean Newberry.

Program Officer John Thorbjarnarson directs two projects in Venezuela. The anaconda project began its third year at Hato El Cedral with field biologists María Muñoz and Tibisay



new Central American Alliance for Sustainable Development. It is the first time that all Central American countries have agreed to cooperate on environmental issues. The Corridor was the focus of the environmental agenda at the Summit of the Americas, a hemispheric congress hosted

by President Bill Clinton and Vice President Gore in Miami in early December 1994.

WSC's Chuck Carr, who directs Paseo Pantera, calls this kind of international cooperation "as good as it gets for conservation."

Escalona and Bronx Zoo reptile Collection Manager William Holmstrom and keepers Frank Indiviglio and Peter Taylor. The Orinoco crocodile breeding program made its 1,000th release into the wild, including new reintroductions in the Aguaro-Guariquito National Park. The first census of Orinoco crocodiles in Colombia was begun by Mirian Lugo of the Colombian National University's Roberto Franco Tropical Biological Station.

The work of Charles Munn, who has conducted macaw studies in Peru's Manu National Park and Tambopata Reserve for ten years assisted by Eduardo Nycander von Massenbach, was featured in two prominent media outlets: "Spirits of the Rainforest," a two-hour film on Discovery Channel in October, and a cover story in the January *National Geographic*. At

Punta San Juan in Peru, Patricia Majluf, with support from the "Women in Conservation" program of the Charlotte Wyman Trust, began an educational campaign in the fishing community to prevent the killing of fledgling penguins by nets.

On the other coast, at Península Valdés in Patagonia, surveys were conducted of elephant seals, Magellanic penguins, imperial cormorants, rock cormorants, great skuas, kelp gulls, and dolphin gulls, and fur seal and sea lion colonies were evaluated. Interactions between tourists and whales were assessed, analyses of the environmental effects of oil pollution and tourist pressure on penguins were published, and biotelemetry studies of sea lions and elephant seals led to the first maps of their ocean use and to an assessment of their conflicts with commercial fisheries. Society veterinarians Robert Cook and William Karesh visited to appraise the health of these populations. The effect of guano harvesting in Santa Cruz Province and the impact of shipping from Puerto Deseado on marine mammals were also being studied.

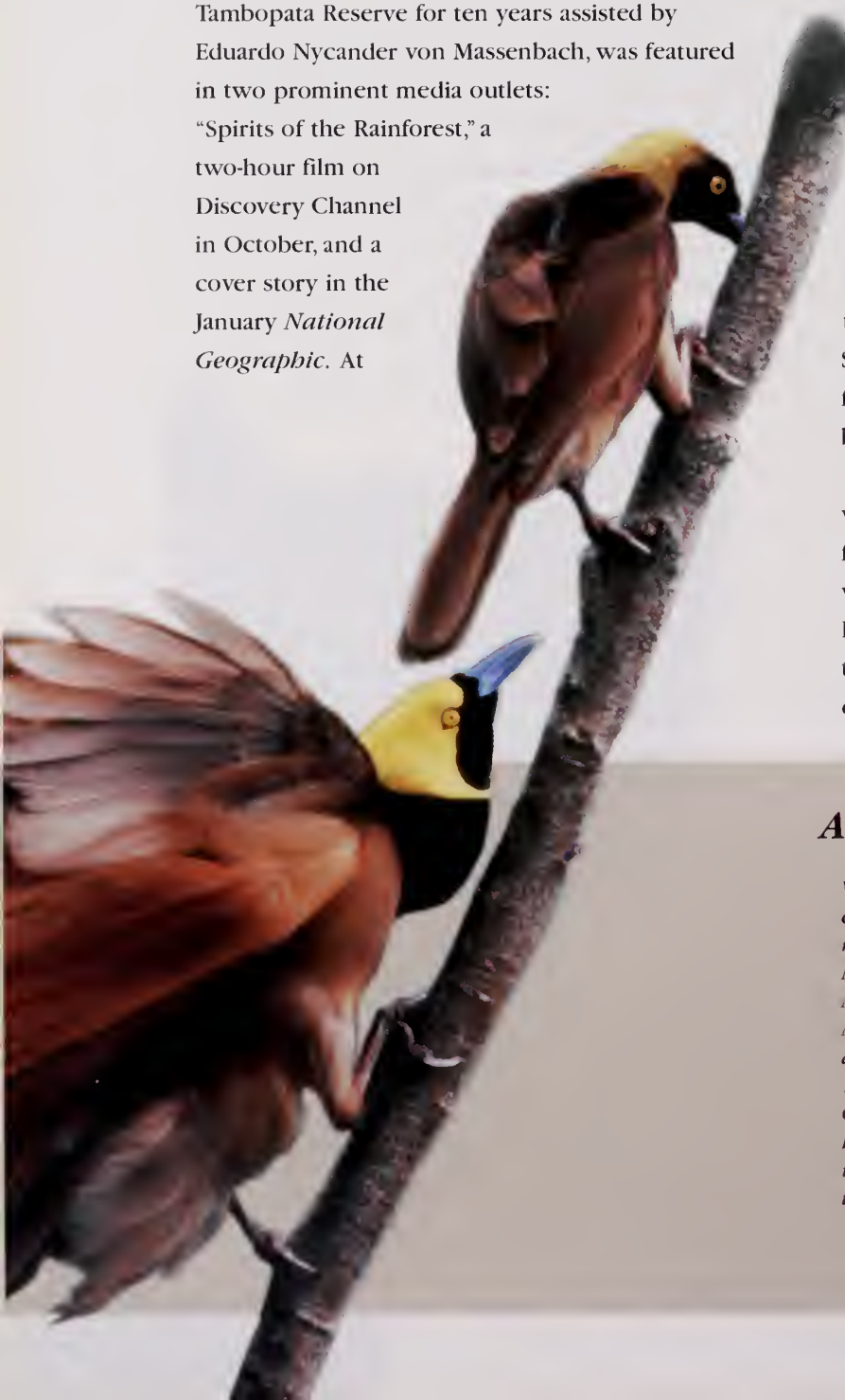
Puerto Deseado was the site of a successful workshop run by the Fundación Patagonia Natural for researchers, government officials, and others on wildlife, fisheries, tourism, pollution, and education. It was a small part of the first-year activities of the three-year Patagonian Coastal Zone Management Plan coordinated by William Conway, Claudio Campagna,

A Model of Cooperation

With members of 21 different clans donating 1,000 square miles of forest land in Papua New Guinea, Crater Mountain Wildlife Management Area was declared in early November 1993. According to WCS Ornithology Chairman Donald Brunning, who has worked for conservation in the Pacific island nation

since 1979, local communities wanted to avoid the massive deforestation that has occurred elsewhere and the disappearance of bird species integral to their lives.

The Society's long-term support for conservation efforts in the country and its many studies of indigenous birds of paradise (left), cassowaries, cuscus, other wildlife paved



and Graham Harris for the Society, the Fundación, and the Argentine government, and funded by the World Bank Global Environmental Facility through the United Nations Development Programme. Important support was also received from the Bailey Wildlife Foundation, the Tortuga Foundation, and the Liz Claiborne and Art Ortenberg Foundation.

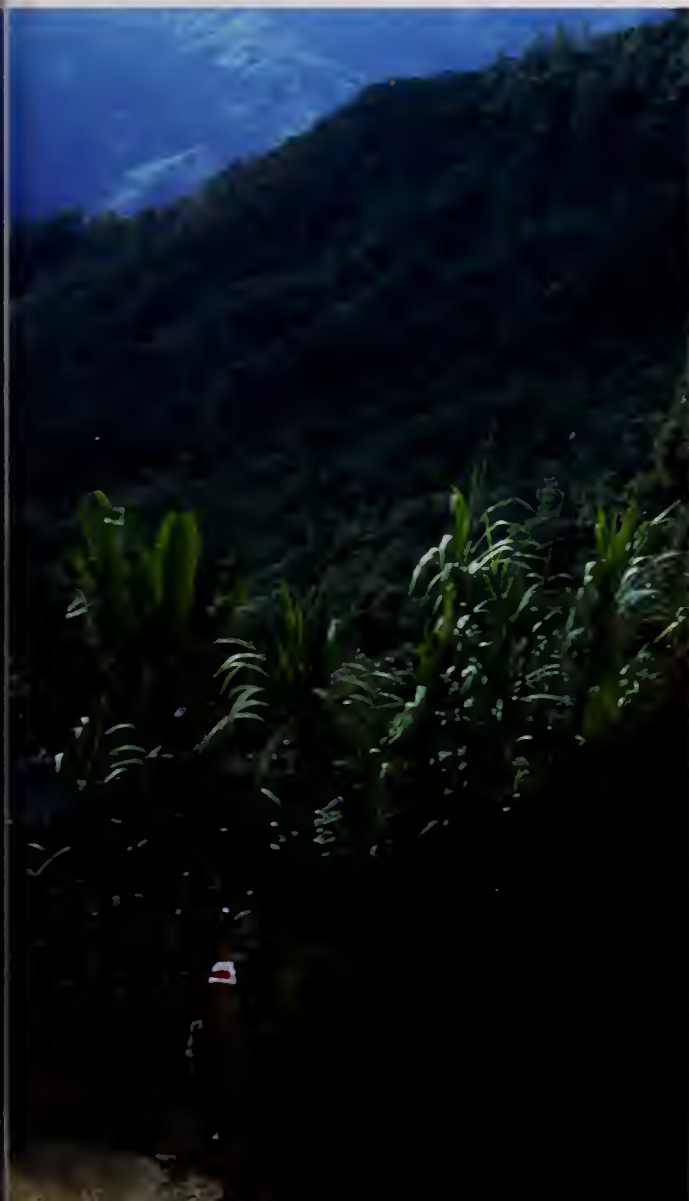
In Central America, the larger idea of Paseo Pantera—to create a biotic corridor protecting plant and animal life the length of the isthmus—advanced on several fronts during the year. In September, an international conference was held on the subject in Costa Rica, and an associated project analyzed various routes for the corridor. The legal framework for implementing the corridor was further developed by the Mesoamerican Biodiversity Legal Project,

complementing the Society's work with the Central American Commission on Protected Areas—comprised of the natural resources ministers of the seven Central American republics—to identify conservation goals for the area. Dr. Mario Boza, founder of the Costa Rican National Parks Service and former vice-minister of natural resources in Costa Rica, is working on a regional strategy for long-term implementation of the corridor. The proceedings of a regional conference on ecotourism have already been published and distributed throughout the region.

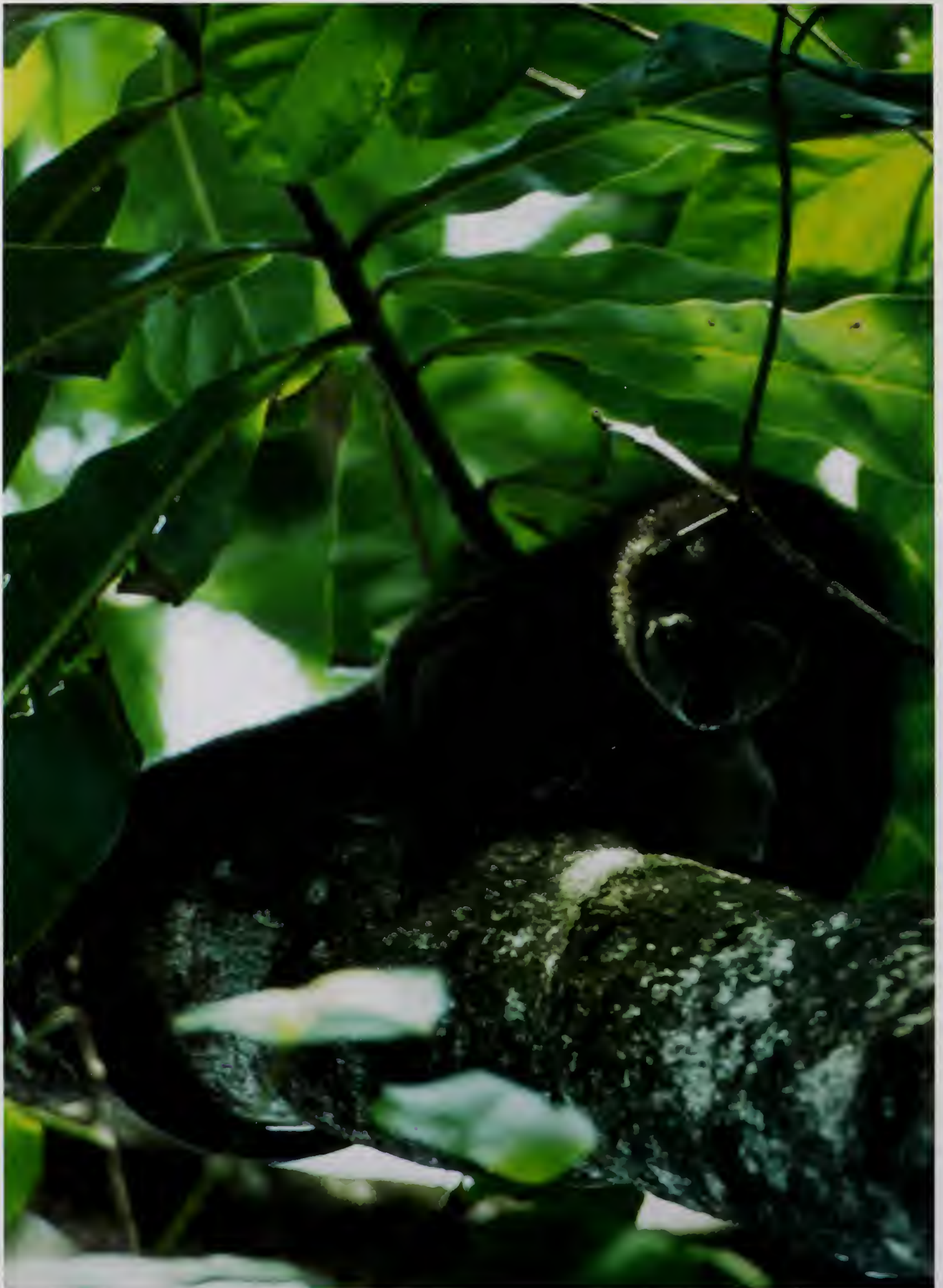
Paseo Pantera is also sponsoring the publication of David Rains Wallace's natural history travel guide to Central America. Another book on the natural and cultural history of the isthmus is underway, directed to the Central American public, decision-makers, park-users, students, and the international conservation community.

In Guatemala, Jim Barborak and Julieta Carrion de Samudio, along with Guatemalan and international experts, are developing a public use plan for Tikal National Park, one of the most frequented tourist sites in Central America, that could become a model for the nearby Mayan sites of Calakmul in Mexico and Caracol in Belize. Part of the Tikal program involves environmental education for teachers and schoolchildren in local communities.

Work continues in Belize, as Bruce and Carolyn Miller helped the government design and map a new system of forest reserves, and Janet Gibson fin-



the way for local landowners to join together (left) for the purpose of protecting their natural heritage. Local conservation groups recently opened a research and visitor center to encourage study and tourism and to employ local people as guides. Researchers will be required to pay fees for working within the reserve, and agricultural assistance will be provided by outside experts to help develop alternative sources of revenue.



ished her first year directing the United Nations Global Environmental Facility project on the Belize Barrier Reef. Funded by the British-based Lady Kinnoull's Trust, construction was begun on the Society scientific station on Middle Cay in the recently declared Glover's Reef Marine Reserve, where the study of coral reef ecology and the training of local and international students will be overseen by Jacque Carter.

Other coastal and marine projects include Cynthia Lagueux's research on the impact of green sea turtle harvesting on the Miskito coast of Nicaragua, a resource inventory on Mexico's Chinchorro Banks, a range of activities to protect the sea turtle nesting beach in Tortuguero, Costa Rica, and Anne and Peter Meylan's work on sea turtles in Bocas del Toro province in Panama. A series of participatory workshops were held to set conservation goals for the Bocas area, and a national meeting focused on standardizing regulations and guidelines for tourism in the country's protected areas.

Important surveys were conducted in the forests of Panama, El Salvador, and Honduras. Peter Herlihy mapped the forest uses of indigenous people in the Darien region of Panama with the aim of achieving protection for them and their diverse biological resources. Olivar Komar directed studies of avian biodiversity and habitat use in El Salvador and two ornithology training courses there. And in Honduras the Society completed an extensive project recommending overhaul of the governmental institution that manages protected areas. A natural resources inventory in La Muralla, a cloud forest national wildlife refuge, resulted in an operational plan for the area, and support was given to a national foundation for the Rio Platano Biosphere Reserve.

Asia New Director for Asia Alan Rabinowitz launched the Global Tiger Campaign to include ongoing and new initiatives in a concert-

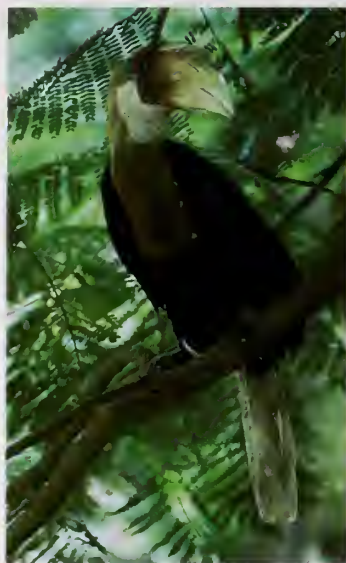
ed effort to save the five remaining tiger species. Initial funding was provided by the L.K. Bosack and B.M. Kruger Foundation. Ullas Karanth, now a full staff member, prepared to begin the first country-wide survey of tigers in India. He has already found that the poaching of tiger prey is a major obstacle to tiger survival. At the beginning of winter, a census of Siberian tigers will be conducted in far-eastern Russia with the Hornocker Wildlife Research Institute. Tigers will be studied in Sumatra and Vietnam as well.

In three-year agreements, Myanmar (Burma) and Laos opened up to Society scientists for the first time since the Vietnam War began in the early 1960s. During the winter dry season, Rabinowitz and George Schaller found great biodiversity in protected areas, including tigers in Myanmar, but few large mammals, which have been driven to local extinction by hunting. In Laos, William Bleisch, Rob Timmons, and Tom Evans identified several new bird species as well as a new barking deer. Poaching is also a problem in Vietnam, where Ramesh Boonratana completed a six-month survey of snub-nosed langurs and found little good remaining habitat for them.

Kunming remained the center of a multifaceted cooperative program in China. Funded by the John D. and Catherine T. MacArthur Foundation, wildlife surveys were underway in the Gaoligong-shan region and southeastern Tibet, where tropical rain forest penetrates far into higher country along deep and rugged canyons carved by the Mekong, Salween, Yangtze, and Brahmaputra rivers and their tributaries. The Society's environmental education program met with great success (see pp. 22, 28-29), and Kunming will host a meeting of government officials and others about a cooperative program to support field science and stop cross-border wildlife trade.

The MacArthur foundation also backed studies in Sarawak by Elizabeth Bennett, who neared completing fieldwork for the most comprehensive analysis of hunting ever undertaken in Southeast Asia and produced a report on logging (with her student Zainuddin Dahaban), and by another student, Jephthe

The bear cuscus, a small tree-dwelling marsupial (left), and the Blyth's hornbill (next page) in northern Sulawesi, Indonesia, are important species in the tropical ecology studies of Tim O'Brien and Margaret Kinnaird.



Sompud, who will study the effects of fire on wildlife. Elsewhere in Sarawak, the government accepted Mike Meredith's comprehensive management plan for the Kinabatangan River, and Charles Francis, while censusing bats, made the astounding discovery of a lactating male

bat in the species *Dyacopterus spadiceus*.

In Sulawesi, Indonesia, Tim O'Brien and Margaret Kinnaird focused for the first time on the poorly known hornbills of Tangkoko, which are important in forest regeneration and as a conservation symbol. Lynn Clayton's study of endangered babirusa in the northern part of the island has already raised local awareness about conservation. At his new research station in Sumatra's flooded lowland forest of Suaq Balimbing, Carel van Schaik and his team have discovered high densities of orangutans exhibiting unusual and difficult-to-explain migratory movements.

An extraordinary cooperative effort finally created the 1,000-square-mile Crater Mountain Wildlife Management Area, based on the declaration of all 21 clans who own the land and by government officials. Seldon James walked from village to village spreading the conservation message while David Gillison and the Research and Conservation Foundation (RCF) made it happen in the capital. A USAID implementation grant to the Society, RCF, and the Foundation for Peoples of the South Pacific will help manage the area. Another wildlife management area was set up at Mt. Mekil, where Keyt Fischer finished her work on cuscuses and mobilized local and mining company support for protecting wildlife. She then launched a project to preserve Madang Lagoon and help artisanal fishermen.

George Schaller continued his studies of ungu-

late ecology on the Tibetan Plateau, and his efforts to limit conflict between herders and grazing wildlife in the Chang Tang Reserve. In Mongolia, he is helping the government set up a management strategy for their entire national park system. Tom McCarthy assisted Schaller in the Gobi and started tracking snow leopards from a new base camp. He is also conducting a large-scale survey of snow leopards in the western Altai.

Conservation Policy

On May 17, Policy Analyst Dorene Bolze testified before the Subcommittee on Environment and Natural Resources of the House Committee on Merchant Marine and Fisheries on behalf of the Rhinoceros and Tiger Conservation Bill of 1994 (H.R. 3987). The bill would establish a \$10-million fund for tiger and rhino conservation efforts over the next five years and provide time lines to apply the Pelly Amendment to embargo trade in wildlife products. The amendment was in fact invoked by President Clinton in April to stop the importation of tiger and rhino parts from Taiwan, the first time a country has been sanctioned by U.S. law for violating wildlife conservation laws.

In support of this effort, fact sheets were created and distributed by the Society on the status of tigers and rhinos. In Hong Kong, an advertising campaign on the tiger is being designed for an Asian audience *pro bono* by Ogilvy and Mather, thanks to the help of Society Trustee John Elliott, Jr.

As part of a three-pronged program of scientific research, public education, and policy on fish conservation, Bolze and Paul Boyle, deputy director of the Aquarium, have developed the new Critical Ocean Wildlife Initiative (see Aquarium for Wildlife Conservation, p.12). One focus is the Atlantic bluefin tuna, which has declined sharply since the 1970s, while the southern bluefin tuna has also declined since the 1960s. The first order of business was to present proposals for listing to CITES (Convention on Trade in Endangered Species), and the Society was instrumental in persuading Kenya to submit both proposals.

International Conservation Projects

AFRICAN PROGRAM

BOTSWANA

1. Effects of elephants on woodland habitats. **Raphael Ben-Shahar.**

CAMEROON

2. Cameroon Biodiversity Project (WCS/USAID). **James Powell.**
3. Ecology and conservation of forest elephants. **James Powell.**
4. Biodiversity assessments and forest management. **James Powell, Leonard Usongo, and Victor Belinga.**
5. Environmental education and training. **Andrew Inyang.**
6. Community based forest resource management. **Maureen Powell.**
7. Forest surveys and strategic planning in the Lobéke region. **Jefferson Hall, Amy Vedder, Leonard Usongo, and Paul Elkan.**
8. Sociological surveys and community participation in the Lobéke region. **Bryan Curran and David Nzouango.**
9. Black-casqued hornbill home range, diet, and keystone aspects. **Ken Whitney, M.K. Fogiel, T.B. Smith, and V.T. Parker.**

CENTRALAFRICAN REPUBLIC

10. Ecology and conservation of small carnivores. **Justina Ray.**
11. Dzanga Forest elephant study. **Andrea Turkalo and J. Michael Fay.**
12. Ecological and social influences on foraging in gorillas. **Michele Goldsmith.**
13. Logging impacts on small mammal communities. **Jay Malcolm.**

CONGO REPUBLIC

14. Congo Forest Conservation Project (WCS/USAID). **J. Michael Fay, Marcellin Agnagna, Richard Ruggiero, Matthew Hatchwell, and Jerome Mokoko.**
15. Biological surveys, inventories, and research in Nouabalé-Ndoki. **J. Michael Fay, Marcellin Agnagna, and Richard Ruggiero.**
16. Conservation education and NGO liaison. **Matthew Hatchwell and J. Michael Fay.**

EGYPT

17. Status of the Egyptian tortoise. **Sherif El Din Baha.**

ERITREA

18. Coastal zone conservation and management. **Jesse C. Hillman.**

ETHIOPIA

19. Awash National Park management plan. **Catherine Schloeder and Michael Jacobs.**
20. Bale Project. **James Malcolm.**
21. Omo National Park. **Zealelem Teferre and Fekado Teferre.**
22. Menagesha Forest National Park Project. **Afework Bekele.**

GABON

23. Research for Management of Lopé Forest (WCS/ECOFAC). **Lee White.**
24. Impacts of logging on gorilla and forest elephant ecology. **Lee White.**

GHANA

25. Forest elephant survey methods. **Richard Barnes.**

IVORY COAST

26. Manatees, coastal mangrove conservation, and education. **Kouadio Akoi.**

KENYA

27. Kenya Wildlife Service ecological monitoring: program design and training. **David Western.**
28. Ecological monitoring and management in Amboseli National Park. **David Western.**
29. Ecotourism research and management. **Christopher Gakahu.**
30. Ecotourism Society of Kenya. **Christopher Gakahu and David Western.**
31. Savanna fire ecology and management. **Helen Gichohi.**
32. Wildlife distribution and habitat use in the Kitengela Corridor: Nairobi National Park and the Athi-Kapiti Plains. **Helen Gichohi.**
33. Ecological role and impacts of elephants outside of parks. **John Waithaka.**
34. Herbivore research in Nakuru National Park. **Evans Mwangi.**
35. Impacts of savanna settlements. **Andrew Muchiru.**
36. Coral reef ecology and conservation. **Tim McClanahan.**

MALAGASY REPUBLIC

37. Masoala Park Creation and Buffer Zone Management (WCS/CARE/USAID). **Clare Kremen and Vincent Razafimahatratra.**
38. Ecological monitoring and professional training. **Clare Kremen and Vincent Razafimahatratra.**
39. Avian biodiversity studies. **Steve Zack.**
40. Distribution, status, and biology of flat-tailed tortoises. **John Behler.**

NAMIBIA

41. Conservation and impacts of dehorning on black rhinos. **Joel Berger and Carol Cunningham.**
42. Behavioral ecology and conservation of black-faced impala in Kaokoland. **Wendy Green and Aron Rothstein.**

RWANDA

43. Nyungwe Forest Conservation Project (WCS/USAID). **Cheryl Fimbel and Robert Fimbel.**
44. Bird and mammal inventories, research, and ecological monitoring. **Robert Fimbel, Cheryl Fimbel, and Samuel Kanyamibwa.**
45. Ecotourism/conservation education. **Nyungwe Staff.**
46. Human impact studies and restoration ecology. **Robert Fimbel.**

SIERRA LEONE

47. Rain forest conservation and education. **John Oates and Emmanuel Aliu.**
48. Potential of sacred groves for biodiversity conservation. **Aiah Randolph Lebbie.**
49. Ecology and conservation of white-necked picathartes. **Hazell Thompson.**

SOUTH AFRICA

50. Cape parrot ecology and status. **Olaf Wirminghaus.**

TANZANIA

51. Social organization, resource use, dispersal, genetics, and disease in jackals. **Patricia Moehlman.**

52. Biodiversity inventory, research and monitoring in Tanzanian national parks. **Lota Melamari and Patricia Moehlman.**
53. Training and conservation education. **Patricia Moehlman.**
54. Biological variation in bushbaby populations. **Simon Bearder and Paul Hones.**
55. Health parameters, genetics, and management of captive and wild pancake tortoises. **Michael Klemens and Bonnie Raphael.**
56. Afromontane flora of Mount Kilimanjaro. **John Grimshaw.**
57. Biodiversity and human ecology in Ngorongoro Conservation Area. **Terry McCabe, Kathy Galvin, Patricia Moehlman, and Jim Ellis.**
58. Wildebeest population dynamics in the Serengeti. **Simon Mduma.**
59. Elephant impact on woodland vegetation in Ruaha National Park. **Cuthbert Nahonyo.**
60. Herbarium development in Tanzanian national parks. **Alawi Msuya.**

UGANDA

61. Kibale Forest Conservation Project (WCS/USAID). **Graham Reid.**
62. Research and training in Kibale Forest. **Gilbert Isabirye-Basuta.**
63. Ecotourism and community development. **Mark Noonan.**
64. Chimpanzee ecology and conservation status. **Gilbert Isabirye-Basuta.**
65. Environmental education, outreach, and agroforestry. **Kibale Staff.**
66. Crop loss to wildlife in forest buffer zone. **Lisa Naughton.**
67. Wild coffee ecology and economic potential. **John Kasanene.**
68. Analysis of institutions, laws, and policies for protection of Lake Victoria. **Nightingale Rukuba Ngaiza.**

ZAIRE

69. Ituri Forest Project. **Terese Hart and John Hart.**
70. Okapi and duiker ecology and conservation. **John Hart and D.D. Batido.**
71. Forest Research and Training Center (WCS/USAID). **Terese Hart, John Hart, and Robert Mwinyihali.**
72. Comparative forest dynamics and botanical inventories. **Terese Hart, Bola M. Lokanda, and Makana Mekombo.**
73. Sociological Surveys and Local Participation, Okapi Wildlife Reserve (WCS/World Bank). **Bryan Curran and Richard Tshombe.**
74. Grauer's gorilla census and eastern forest large mammal surveys. **Jefferson Hall, Liz Williamson, Claude Sikubwabo, and Lee White.**

ZAMBIA

75. Nyamaluma Community-based Training and Land Use Planning/ADMADE (WCS/USAID). **Dale Lewis.**

ZIMBABWE

76. Monitoring large mammal populations in Sengwa Wildlife Research Area. **Ian Martin Coulson and Deborah St. Clair Gibson.**

REGIONAL

77. PARCS Training Needs Assessment and Pilot Projects (WCS/WWF/WWF/BSP/USAID). **Annette Lanjouw, Matthew Hatchwell, and Hilary Simmons Morland.**

78. Methods for forest elephant surveys in Central Africa. **Richard Barnes.**
79. Integrated monitoring program for trans-boundary forest conservation in Cameroon, Central African Republic, and Congo. **Lee White and Bryan Curran.**
80. Socioeconomic assessments and local community participation in African forests. **Bryan Curran.**
81. Mountain gorilla census. **Amy Vedder.**
82. Assessment of Rhino Conservation Strategies (WCS/WWF). **Nigel Leader-Williams, Esmond Bradley Martin, David Western, and Holly Dublin.**
83. Structure of ungulate populations. **Nick Georgiadis.**
84. Training in African coral reef ecology and management. **Tim McClanahan.**

LATIN AMERICAN PROGRAM

ARGENTINA

85. Natural history and wildlife conservation. **William Conway.**
86. Patagonian Coastal Zone Management Plan (WCS/GEF/). **William Conway, Guillermo Harris, Claudio Campagna, and Fundación Patagonia Natural.**
87. Ecology and conservation of the Magellanic penguin. **Dec Boersma and Pablo Yorio.**
88. Ecology and conservation of marine mammals in Peninsula Valdés. **Claudio Campagna.**
89. Natural history of Patagonia, conservation strategies, and Peninsula Valdés station management. **Guillermo Harris.**
90. Ecology and conservation of marine birds. **Pablo Yorio.**
91. Punta Leon seabirds and mammals. **Pablo Yorio, Claudio Campagna, and Guillermo Harris.**
92. Pollution impact on Magellanic penguins. **Esteban Frere and Patricia Gandini.**
93. Ecology and management of Culpeo foxes. **Andres Novaro.**

BELIZE

94. Belize Barrier Reef Management. **Jacque Carter and Janet Gibson.**
95. Tropical forest reserve planning. **Bruce Miller and Carolyn Miller.**
96. Conservation of biodiversity. **Jeanette Bider, Vernon Card, and Douglas James.**
97. Nesting ecology, food habits, and population survey of Morelet's crocodile. **Richard R. Montamucci and Steven G. Platt.**

BOLIVIA

98. Ungulate research and training. **Andrew Taber and Fundación Amigos de la Naturaleza.**
99. Spectacled bear status. **Christian Euler.**
100. Wildlife techniques training. **Damián Rumiz.**
101. Wildlife inventories in the Rios Blanco y Negro Wildlife Reserve. **Andrew Taber.**
102. Abundance, distribution, and habitat use of crocodilians in Beni. **Luis F. Pacheco.**
103. Alto Madidi protected area planning. **Rosamaria Ruiz.**
104. Status of blue-throated macaw. **Charles Munn.**

105. Capybara conservation and management. **Luis Marcelo Zalles.**
106. Avian density resulting from logging extraction. **Guy Cox.**
107. Effects of logging on ungulates and white-lipped peccary behavior. **Lilian Painter.**
108. Effects of logging on the black spider monkey. **Robert Wallace.**
109. Impact of forestry on wildlife, BOLFOR. **Damián Ruiz.**
110. Planning and design of new national park in the Chaco region. **Andrew Taber.**

BRAZIL

111. Flooded forest conservation in Central Amazon. **José Márcio Ayres.**
112. Capybara management and harvest in Marajó. **J.R. de Alencar Moreira.**
113. Seed dispersal in varzea forest. **Andrea Pires.**
114. Legislation for Amazonian conservation units. **Nelson Ribeiro and Heloisa Orli.**
115. Socioecology of arboreal folivores in the flooded forests. **Marianna Munn.**
116. Population and ecological studies of crocodilians. **Ronis Silveira and John Thorbjarnarson.**
117. Hyacinth macaw conservation. **Charles Munn and Carlos Yamashita.**
118. Lear's macaw conservation. **Charles Munn.**
119. White-lipped peccary conservation in Maracá. **José Fragozo.**
120. Deer conservation in the Pantanal. **Laurenz Pinder.**
121. Xavante Indian Ethnozoological Project. **Frans Leeuwenberger.**
122. Frugivores in the Atlantic coast forest. **Mauro Galetti.**
123. Frugivores in small protected areas in SE Brazil. **Sandra Bos Mikich.**
124. Distribution of birds in the Atlantic coast forest. **Jacqueline Goerck.**
125. Vertebrate community structure in western Amazonian forests. **Carlos A. Peres.**

COLOMBIA

126. Alto Quindío avifauna conservation. **Luis Miguel Renjifo.**
127. Regional training coordination. **María Elfi Chaves.**
128. Student grants program. **María Elfi Chaves and FES.**
129. Salvini's curassow ecology. **Marcela Santamaría Gomez.**
130. Avian seed dispersers in the Central Cordillera. **Sandra Arango Caro.**
131. Ecology of the yellow-spotted Amazonian river turtle. **Vivian P. Pácz and Brian Bock.**
132. Edge effects on bird assemblages. **Carla Restrepo.**
133. Insectivores birds in the Chocó. **Luis Naranjo and Patricia Chacon.**
134. Conservation of the Orinoco crocodile. **L. Myriam Lugo Rugelcs.**
135. Fauna demand by indigenous Emberá groups in Utria National Park. **Heidi Rubio.**

COSTA RICA

136. Tarpon status. **John Dean and William McLarney.**
137. Park corridor planning, Tortuguero. **Archie Carr III.**
138. Forest fragments maintenance and biodiversity. **C. Guindon.**
139. Conservation genetics of the green sea turtle. **Tigerin Peare.**

140. Creation of wildlife habitat. **Lynn Carpenter and Mario Cordero.**
141. Ecotourism and riparian corridor, Sarapiquí River. **Federico Paredes.**
142. Monitoring indicator bird species and habitat. **Theodore Simons.**
143. Great green macaw habitat requirements. **George Powell and R. Bjork.**

ECUADOR

144. Curassow population analysis. **A. Johnson.**
145. Mountain tapir ecology and conservation. **Craig Downer, Armando Castellanos, and Jaime Cevallos.**
146. Sustainable Use of Biological Resources Project (WCS/USAID/CARE/TNC). **Jody Stallings, Alejandro Grajal, and EcoCiencia.**
147. Wildlife ecology training courses. **EcoCiencia, Peter Feinsinger, Marty Crump, Jack Putz, Stuart Strahl, and Jody Stallings.**
148. Student grants program. **EcoCiencia and Jody Stallings.**

EL SALVADOR

149. Field ornithology training workshop. **Oliver Komar.**
150. White-fronted parrot biology and conservation. **Alicia Díaz and Nestor Herrera.**
151. Coastal waterbird colonies. **Wilfredo Rodriguez.**

GUATEMALA

152. Wildlife monitoring in Tikal National Park. **Howard Quigley, Milton Cabrera, and María José Gonzalez.**
153. Ocellated turkey study in Tikal National Park. **María José Gonzalez and María Mercedes Lopez.**
154. University curriculum development. **Jim Connor.**
155. Conservation of seagrass bed fishes and macroinvertebrates on the Atlantic Coast. **Alejandro Arrivillaga.**
156. Mammal fauna of Bocas de Piloich wetlands. **Jorge Cardona.**
157. Herpetofauna of Caribbean rain forests. **Eric Nelson Smith Urrutia.**
158. Primate survey. **Johanna Motta Gill.**

HONDURAS

159. La Muralla National Park resource inventory management planning. **Archie Carr III, James Barborak, and Scrgio Midence.**
160. Strengthening of the COHDEFOR wildlands. **Archie Carr III and James Barborak.**

MEXICO

161. Calakmul Biosphere Reserve, Yucatan. **J. Andrews.**
162. Coral reef ecology and management. **Daniel Torruco Gomez.**
163. Monarch butterflies. **Alfonso Alonso and Lincoln Brower.**
164. Rain-forest bird conservation. **Kevin Winkler and Patricia Escalante.**

NICARAGUA

165. Green turtle population on the Miskito Coast. **Cynthia J. Lagucux.**

PANAMA

166. Marine turtle ecology. **Anne Meylan and Peter Meylan.**
167. Wildlife use and park management. **J. Samudio.**
168. Buffer zone systems. **Richard Condit.**

169. Land and the indigenous people of eastern Panama. **Peter Hershlihy.**

PERU

170. Coastal wildlife conservation at Punta San Juan. **Patricia Majluf.**
171. Fisheries and marine mammal conflicts. **Patricia Majluf and Cecilia Rivas.**
172. Conservation education in fishing communities. **Cecilia Rivas.**
173. Humboldt penguin ecology. **Carlos Zalavaga and Rosana Paredes.**
174. Macaw ecology and conservation. **Charles Munn.**
175. Tambopata Reserve planning. **Charles Munn.**
176. Tambopata-Candamo macaw project. **Eduardo Nycander and ACSS.**

VENEZUELA

177. Rio Níchar rain-forest conservation. **Philip Desenne and EcoNatura.**
178. Tapir ecology and conservation. **Leonardo Salas.**
179. Henri Pittier National Park support. **Alejandro Grajal and Amigo del Parque Nacional Henri Pittier.**
180. Student grants program. **EcoNatura.**
181. Parrot trade and conservation. **Philip Desenne.**
182. Orinoco crocodile conservation. **John Thorbjarnarson.**
183. Anaconda ecology. **Jesús Rivas, María Muñoz, John Thorbjarnarson, and Profauna.**
184. National park management and training. **José Ochoa, Alejandro Grajal, and EcoNatura.**
185. Timber extraction and biodiversity corridors. **José Ochoa.**
186. Hunter education around national parks. **José Lorenzo Silva.**
187. Private landowner conservation initiative. **Donald Taphorn.**
188. Bird conservation in managed tropical forests. **D. Mason.**
189. Biocide use. **G. Basili and Stanley Temple.**
190. Yellow-shouldered Amazon ecology and conservation. **Franklin Rojas-Suarez, Virginia Sanz, Mariana Albornoz, Provita, and Matilde Baglietto.**
191. Tegú lizard ecology. **Emilio Herrera.**
192. Cebu biology and genetics. **Ximena Valderrama.**
193. Demographics and habitat of the great tinamou. **Conrad Vispo.**
194. Ethnecology of the Ye'kuana Indians. **Claudia Knab.**
195. River turtle ecology and management. **T. Escalona.**

REGIONAL

196. Paseo Pantera Cooperative Program (WCS/CCC/USAID). **Archie Carr III, James Barborack, and Kathleen Jepson.**

ASIAN PROGRAM

CHINA

197. Small grants management program. **William Bleisch.**
198. Guizhou golden monkey conservation. **Xie Jiahua and William Bleisch.**
199. Conservation project integration, Kunming Institute of Zoology. **Qui Ming Jiang.**
200. Conservation education. **Annette Berkovits and Ann Robinson.**
201. Panda conservation. **Lu Zhi.**
202. Analysis of wildlife trade policy and biodiversity status. **Wang Sung.**

INDIA

203. Langur conservation. **Atul Gupta.**
204. Carnivore ecology, Nagarhole National Park. **Ullas Karanth.**
205. Country-wide tiger surveys. **Ullas Karanth.**
206. Ecology of woodpeckers, Kerala. **V. Santharam.**
207. Conflict between local communities and a wildlife sanctuary, Kerala. **Sultana Bashir.**
208. Conservation of the great pied hornbill. **Ragupathy Kannan and Douglas James.**
209. Ecology of seed dispersal in the lion-tailed macaque. **R. Krishnamani.**

INDONESIA

210. Tropical ecology of northern Sulawesi. **Margaret Kinnaid and Tim O'Brien.**
211. Orangutan research and conservation training. **Carel van Schaik.**
212. Conservation biology of the babirusa in Sulawesi. **Lynn Marion Clayton.**
213. Remnant trees and frugivores in the regeneration of burned forest. **Adi Susilo.**
214. Post-release behavior of the Bali mynah. **Mark Collins and Thomas Smith.**

LAOS

215. Conservation training and integrated management of protected areas. **William Bleisch, John Payne, and Asia staff.**
216. Wildlife surveys for key areas. **Alan Rabinowitz and George Schaller.**

MALAYSIA

217. Wildlife management, Sarawak and Sabah. **Elizabeth Bennett.**
218. Research and management training, Sarawak and Sabah. **Alan Rabinowitz and Elizabeth Bennett.**
219. Kinabatangan River management, Sabah. **Michael Meredith.**
220. Sumatran rhino surveys, Sabah. **Ramesh Boonratana and Alan Rabinowitz.**
221. Conservation status of forest birds. **Charles Francis.**
222. Ecological study and management of game species, Sarawak and Sabah. **Elizabeth Bennett and Jephthe Sompod.**
223. Conservation management of the Bornean banded langur, Sarawak. **Elizabeth Bennett and Adrian Nyaoi.**

MONGOLIA

224. Gobi Desert research and conservation. **George Schaller.**

MYANMAR

225. Wildlife surveys. **George Schaller and Alan Rabinowitz.**

NEPAL

226. Abundance and distribution of the tropical myrmecophagous sloth bear. **Joseph L. David and David L. Garshelis.**

PAPUA NEW GUINEA

227. Crater Mountain management plan. **Seldon James.**
228. Crater Mountain rural development. **David Gillison, Samantha Gillison, and Seldon James.**
229. Conservation biology training/small grants. **Seldon James and Deborah Wright.**
230. Montane cuscus conservation. **Keyt Fisher.**
231. Palm cockatoo research. **Donald Bruning.**

RUSSIA

232. Tiger research and conservation in Far East. **Hornocker Wildlife Research Institute.**

TAIWAN

233. Training and conservation. **Alan Rabinowitz.**

THAILAND

234. Country-wide tiger census. **Alan Rabinowitz.**
235. Small carnivore research in Huai Kha Khaeng/Thungyai Wildlife Sanctuary. **Saksit Sinicharoon and Kathy Conforti.**

TIBET AUTONOMOUS REGION

236. Wildlife surveys and reserve planning. **George Schaller.**
237. Southeast Tibet wildlife surveys. **Richard Harris.**
238. Conservation of Black-necked Crane (WCS/ICF). **Mary Ann Bishop.**

VIETNAM

239. Snub-nosed monkey survey. **Ramesh Boonratana.**

VETERINARY FIELD PROGRAM

AFRICA

240. Black-faced impala consultation, Namibia.
241. Pancake tortoise consultation, Tanzania.
242. Ugandan kob disease research and training, Zaire.
243. Savanna buffalo disease research and training, Zaire.
244. Northern white rhino project, Zaire.
245. Duiker disease research, Zaire.

ASIA

246. Orangutan medical issues and genetics, Indonesia.
247. Bali mynah reintroduction program, Indonesia.
248. Training follow-up, Indonesia.
249. Gibbon health evaluation and policy development, Thailand.

LATIN AMERICA

250. Training in marine mammal immobilization and health evaluation, Argentina.
251. Magellanic penguins and kelp gulls, disease research and training in health evaluation, Argentina.
252. Training in avian post-mortem examination, Argentina.
253. White-lipped peccaries, disease research, Bolivia.
254. Spectacled caiman, disease research, Bolivia.
255. Wildlife rehabilitation, Costa Rica.
256. Mountain tapir restraint evaluation, Ecuador.
257. Psittacine and felid reintroduction procedures, Guatemala.
258. South American fur seals, disease research and restraint training, Peru.
259. South American sea lions, disease research and training in handling and post-mortems, Peru.
260. Humboldt penguins, disease research and post-mortem training, Peru.
261. Vampire bats, disease research, Peru.
262. Macaw project disease research, handling and rearing evaluation, Peru.

NORTH AMERICA

263. White-tailed deer biotelemetry, training in handling and radio-collaring, U.S.
264. Asian bear biopsy darting, U.S.

EVENTS THROUGH THE YEAR



EVENTS THROUGH THE YEAR

Top left: On October 5, 1993, Brooklyn Borough President Howard Golden (right) officially opened the Prospect Park Wildlife Center by flipping a fish to a sea lion, as Society Chairman Howard Phipps, Jr. (far right), Parks Commissioner Betsy Gotbaum (in white), and the opening day crowd looked on.



Middle far left: Nearly 300 staff members, including Maintainer Nathaniel Torres, took part in the Society's Health Fair on November 17, 1993 at the Lion House, which offered services ranging from stress evaluations to cholesterol testing.

Lower left: Bronx Borough President Fernando Ferrer (second from left) received a special award from the Society "For his contributions to the renaissance of the Bronx Zoo and the betterment of the borough of the Bronx," on November 18, 1993, attended by (left to right) Chairman Howard Phipps, Jr., sculptor Ramon Quinones, and President William Conway.

Middle left and lower right: The David Richard Gaskin Steel Band played and puppeteer Luane Davis introduced Pablo Python to children and their parents at the Explorers' Party on May 23, 1994, at the Central Park Wildlife Center, which raised more than \$30,000 for the planned Congo Forest/Environmental Education Center at the Bronx Zoo.



Top right: Mammal Keeper Dianne Tancredi introduced two Bronx Zoo-born snow leopards to Trustee Allison Stern (second from left) and new Advisors John Denver and Ann Unterberg.



Above: The "Centennial Prelude" gala evening at the Bronx Zoo on June 15, 1994, began at Wild Asia Plaza (left) and concluded with dinner at Astor Court, where Advisor Jessie Araskog and Trustee Rand Araskog received Leadership Awards from Chairman Howard Phipps, Jr. (right). About 500 people attended the gala, which raised

more than \$750,000 for the Society's education and international programs.

Below: Society staff members gathered for the annual Bronx Day Parade on June 5, 1994, a five-mile walk and celebration down the Grand Concourse led by Bronx Borough President Fernando Ferrer.



Top left, page 47: Storyteller and songster Grandpa Art stirred enthusiastic crowds of Aquarium-goers at the opening of *Sharks Alive!* on May 5, 1994.

Bottom left, page 47: The Society's annual meeting at Avery Fisher Hall on February 7, 1994 featured naked mole rats, plans for the Congo Forest/Environmental Education Center, and a powerful new film on the Society's conservation mission.

Top right, page 47: In the naming contest sponsored by New York Newsday, Olympians, and the



EVENTS THROUGH THE YEAR



Wildlife Conservation Society, 17,000 contestants entered and 8-year-old Michal Racblin of Teaneck, New Jersey, won the grand prize of an Olympus IS-2 camera, a whale-watching trip for two, and a chance to feed the baby beluga whale she named "Aurora." Director of Training Kevin Walsh and Trainer George Biedenbach look on.

Middle right: On national "Take Our Daughters to Work Day,"



April 28, 1994, Bronx Zoo Education Instructor Christina Colon conducted a class of staff daughters in JungleWorld.

Lower right: Queens Borough President Claire Schulman accepted a certificate from Queens Wildlife Center Director Robin Dalton at the June 30, 1994 dedication of a habitat for a rescued American bald eagle, named Claire in the borough president's honor.





Animal Census (AT DEC. 31, 1993)*Bronx Zoo-Wildlife Conservation Park***MAMMALS**

	<i>Species and subspecies</i>	<i>Specimens owned</i>	<i>Births/ hatchings</i>
Marsupialia—Kangaroos, gliders	2	42	3
Insectivora—Hedgehogs, tree shrews	3	14	3
Chiroptera—Bats	7	456	459
Primates—Apes, monkeys, marmosets, etc.	27	196	30
Edentata—Sloths	1	1	0
Rodentia—Squirrels, rats, gerbils, porcupines, etc.	34	493	380
Carnivora—Bears, cats, dogs, etc.	19	78	10
Pinnipedia—Sea lions	1	5	0
Proboscidea—Elephants	1	7	0
Hyracoidea—Hyraxes	1	6	3
Perissodactyla—Horses, rhinos, etc.	4	52	1
Artiodactyla—Cattle, sheep, deer, antelope, etc.	26	389	69
TOTALS	125	1,739	959

BIRDS

Struthioniformes—Ostriches	1	2	0
Rheiformes—Rheas	1	4	0
Casuariiformes—Cassowaries, emu	3	6	0
Sphenisciformes—Penguins	1	8	0
Pelicaniformes—Pelicans, cormorants, etc.	4	21	0
Ciconiiformes—Heron, storks, flamingos, etc.	11	108	13
Anseriformes—Swans, ducks, geese, screamers	44	248	42
Falconiformes—Vultures, eagles	6	12	0
Galliformes—Maleos, curassows, pheasants, etc.	21	132	66
Gruiformes—Cranes, rails, etc.	14	68	5
Charadriiformes—Plovers, gulls, etc.	18	107	12
Columbiformes—Pigeons, doves	12	25	2
Psittaciformes—Parrots	23	41	0
Cuculiformes—Touracos, cuckoos, etc.	7	17	12
Strigiformes—Owls	5	8	0
Caprimulgiformes—Frogmouths	1	3	0
Coliiformes—Mousebirds	1	1	0
Coraciiformes—Kingfishers, bee-eaters, rollers, hornbills, etc.	16	45	1
Piciformes—Barbets, toucans, woodpeckers	5	6	0
Passeriformes—Perching birds	73	225	26
TOTALS	267	1,087	179

ANIMAL CENSUS

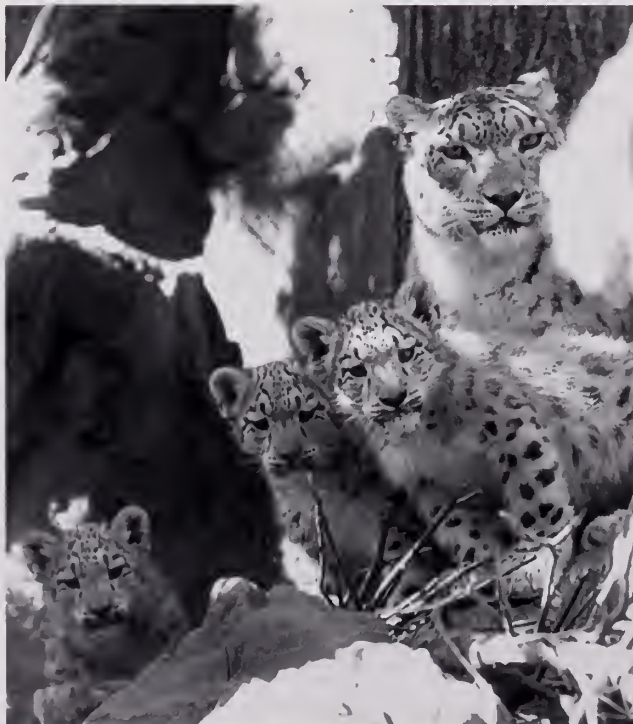
REPTILES AND AMPHIBIANS

	<i>Species and subspecies</i>	<i>Specimens owned</i>	<i>Births/ hatchings</i>
Chelonia—Turtles	52	462	27
Crocodylia—Alligators, caimans, crocodiles	9	255	0
Squamata (Sauria)—Lizards	25	82	2
Squamata (Serpentes)—Snakes	44	216	31
Caudata—Salamanders	3	9	0
Anura—Frogs, toads	18	105	18
TOTALS	151	1,129	78
Bronx Zoo Totals	543	3,955	1,216

Children's Zoo, Bronx Zoo

MAMMALS

Marsupialia—Wallabies	1	7	1
Insectivora—Hedgehogs	2	7	0
Chiroptera—Bats	1	28	0
Primates—Lemurs	1	7	0
Edentata—Armadillos	3	0	4
Lagomorpha—Rabbits	1	17	0
Rodentia—Squirrels, rats, beavers, porcupines, etc.	8	27	0
Carnivora—Foxes, otters, etc.	5	13	0
Perissodactyla—Horses	2	7	1
Artiodactyla—Goats, sheep, camels, etc.	6	48	9
TOTALS	30	161	15



Bronx Zoo babies: Snow leopard triplets (left) and Baringo giraffe (right).



ANIMAL CENSUS

BIRDS

	Species and subspecies	Specimens owned	Births/ hatchings
Pelecaniformes—Pelicans	3	8	0
Ciconiiformes—Hérons	1	7	0
Anseriformes—Ducks, geese	10	44	0
Falconiformes—Vultures, hawks, etc.	3	3	0
Galliformes—Chickens, bobwhites	2	52	0
Columbiformes—Doves	2	3	0
Psittaciformes—Parrots	11	19	0
Strigiformes—Owls	4	10	1
Caprimulgiformes—Frogmouths	1	1	0
Passeriformes—Perching birds	1	1	0
TOTALS	38	148	1

REPTILES AND AMPHIBIANS

Crocodylia—Alligators	1	8	0
Squamata (Sauria)—Lizards	5	15	0
Squamata (Serpentes)—Snakes	9	29	0
Anura—Frogs, toads	2	6	0
Chelonia—Turtles	7	39	0
TOTALS	22	91	0

Children's Zoo Census	90	400	37
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St. Catherines Wildlife Survival Center, Georgia

MAMMALS

Marsupialia—Wallabies	1	11	0
Primates—Lemurs, macaques	4	48	11
Perissodactyla—Zebras	1	14	6
Artiodactyla—Antelope	6	82	22
TOTALS	12	155	39

BIRDS

Ciconiiformes—Storks	3	13	2
Galliformes—Pheasants	8	25	6
Gruiformes—Cranes, bustards	10	63	3
Columbiformes—Pigeons	1	1	0
Psittaciformes—Parrots	12	39	4
Coraciiformes—Hornbills	6	10	3
TOTALS	40	151	18

REPTILES

Chelonia—Turtles	2	90	11
Squamata (Serpentes)—Snakes	1	2	0
TOTALS	3	92	11

Wildlife Survival Center Census	55	398	68
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ANIMAL CENSUS

Central Park Wildlife Center

MAMMALS

	Species and subspecies	Specimens owned	Births/hatchlings
Chiroptera—Bats	2	115	32
Primates—Monkeys	4	26	6
Rodentia—Acouchis, squirrels	1	1	0
Carnivora—Bears, otters, pandas	4	8	0
Pinnipedia—Seals, sea lions	2	4	2
TOTALS	13	154	40

BIRDS

Sphenisciformes—Penguins	2	8	6
Anseriformes—Swans, ducks, geese	4	10	0
Galliformes—Partridges, tragopans	2	3	0
Charadriiformes—Puffins	1	32	2
Columbiformes—Doves, pigeons	3	5	2
Psittaciformes—Parrots	1	18	11
Cuculiformes—Turacos	2	4	0
Piciformes—Toucans	1	2	0
Passeriformes—Perching birds	18	67	46
TOTALS	38	151	67

REPTILES AND AMPHIBIANS

Chelonia—Turtles	8	82	0
Crocodylia—Caiman	1	3	0
Squamata Sauria—Lizards	15	63	15
Squamata Serpentes—Snakes	8	33	0
Anura—Toads and frogs	19	140	43
TOTALS	51	321	68

Central Park Wildlife Center Census

102	626	175
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Red panda twins born at the Central Park Wildlife Center.



ANIMAL CENSUS

Queens Wildlife Center

MAMMALS

	<i>Species and subspecies</i>	<i>Specimens owned</i>	<i>Births/batchings</i>
Lagomorpha—Rabbits	1	6	0
Rodentia—Prairie dogs	1	7	0
Carnivora—Pumas, bears, bobcats, coyotes	4	11	11
Pinnepedia—Sea lions	1	4	0
Perissodactyla—Horses	2	3	0
Artiodactyla—Elk, bison, goats, sheep	6	41	8
TOTALS	15	72	8

BIRDS

Ciconiiformes—Egrets	1	14	0
Anseriformes—Ducks, geese	21	131	21
Falconiformes—Eagles	1	1	1
Galliformes—Turkeys	2	27	2
Gruiformes—Cranes	2	2	0
Passeriformes—Perching birds	3	12	5
TOTALS	2	187	28

REPTILES

Chelonia—Turtles	3	24	0
Squamata (Serpentes)—Snakes	2	2	0
TOTALS	5	26	0

Queens Wildlife Center Census

49 285 36



Bronx Zoo babies: Red-crowned crane chick (left) and lowland gorilla twins (right).

Prospect Park Wildlife Center

MAMMALS

	<i>Species and subspecies</i>	<i>Specimens owned</i>	<i>Births/ batchings</i>
Marsupialia—Wallabies	1	7	0
Primates—Tamarins, baboons	2	6	0
Lagomorpha—Rabbits	1	3	0
Rodentia—Prairie dogs, gerbils, mice, etc.	10	53	32
Carnivora—Pandas, meerkats	2	6	0
Pinnipedia—Sea lions	1	2	0
Hyracoidea—Hyrax	1	4	0
Artiodactyla—Cows, goats, sheep	3	7	0
TOTALS	21	88	32

BIRDS

Casuariiformes—Emu	1	2	0
Ciconiiformes—Heron	1	14	0
Anseriformes—Geese, ducks	5	9	0
Falconiformes—Eagles	1	1	0
Galliformes—Bobwhites, pheasants, etc.	5	31	0
Columbiformes—Doves	1	8	0
Psittaciformes—Parrots	4	15	0
Strigiformes—Owls	1	2	0
Passeriformes—Perching birds	4	28	0
TOTALS	23	110	0

REPTILES AND AMPHIBIANS

Chelonia—Turtles	4	12	0
Squamata Sauria—Lizards	4	12	0
Squamata Serpentes—Snakes	6	7	0
Anura—Frogs	2	8	0
TOTALS	17	62	0

Prospect Park Wildlife Center Census

61 260 32



Mammal Collections Manager Penny Kalk with one-year-old lowland gorilla Okpara (left). Beluga whale born at the Aquarium (right).

Aquarium for Wildlife Conservation

MARINE MAMMALS

	<i>Species</i>	<i>Specimens</i>
Pinnipedia—Seals, sea lions, walrus	5	24
Carnivora—Sea otters	1	4
Cetacea—Whales, dolphins	2	10
TOTALS	8	38

BIRDS

Sphenisciformes—Penguins	1	40
--------------------------	---	----

REPTILES

Chelonia—Sea turtles	7	13
Crocodylia—Caiman	1	3
TOTALS	8	16

FISHES

CHONDRICHTHYES—CARTILAGINOUS FISHES

Heterodontiformes—Horn shark	1	1
Squaliformes—Typical sharks	9	12
Rajiformes—Rays, skates	5	12
TOTALS	15	25

OSTEICHTHYES—BONY FISHES

Lepidosireniformes—Lungfishes	2	2
Ceratodontiformes—Australian lungfishes	1	3
Acipenseriformes—Sturgeons	2	5
Elopiformes—Tarpon, bonefish	1	3
Anguilliformes—Eels, morays	4	6
Osteoglossiformes—Arawana, arapaima, knifefish	1	2
Salmoniformes—Trouts	3	80
Cypriniformes—Minnows, carp, cavefish, piranha, tetra	12	670
Batrachoidiformes—Toadfishes	1	15
Atheriniformes—Platys, swordtails, killifish, silversides, needlefish, guppies	12	650
Beryciformes—Squirrelfishes, flashlight fish	3	6
Gasterosteiformes—Seahorses, pipefish	4	20
Perciformes—Perches, sea basses, porgies, cichlids, clownfish, butterflyfish, angelfish, chromis, parrotfish, batfish, grouper, damsel, flagtail goby, anthius	170	1,238
Pleuronectiformes—Flatfishes	5	25
Tetraodontiformes—Puffers, boxfish, triggerfish	6	15
TOTALS	227	2,740

INVERTEBRATES

Cnidaria—Corals, anemones	40	280
Arthropoda—Lobsters, shrimps, crabs, isopods	15	90
Mollusca—Snails, conch, octopus, nautilus cuttlefish, squid	13	270
Echinodermata—Starfish, sea cucumbers, sea urchins	9	200
TOTALS	77	840

Aquarium Census

336 3,699

Wildlife Conservation Society

Operating expenditures exceeded operating revenues by \$3.8 million. Inclement weather, early (summer 1993) and late (spring 1994) in the fiscal year, resulted in 300,000 fewer visitors at the Bronx Zoo.

Admissions and guest services provided 29 percent of operating revenues. Combined attendance at the five New York facilities operated by the Society was nearly 3.8 million visitors. Government grants and contracts provided 36 percent of revenues.

Contributed support and membership revenues amounted to 21 percent of revenues. Investment income, which is based on a 5 percent spending rate policy, provided \$4.5 million for operations during the year.

Program costs accounted for 81 percent of operating expenditures. Severe winter storms increased physical plant maintenance costs at all facilities. Expenditures for international programs reflect the need to fund new programs and projects.

Capital improvement expenditures included opening the Prospect Park Wildlife Center in October 1993. This represents the third and final phase of the City Wildlife Centers project. The Central Park and Queens Wildlife Centers were opened in 1988 and 1992, respectively. Ongoing renovation at the World of Birds and guest service improvements continue at the Bronx Zoo. At the Aquarium, additional work was completed on the Sea Cliffs exhibit.

Frederick A. Melhado
Treasurer

Financial Highlights (in millions)**Operating Results**

Revenues	\$63.8
Expenditures	67.6
Deficit	3.8
Major sources of revenue:	
Admissions and guest services	18.6
City, State, and Federal government	23.2
Contributed support and membership	13.5
Publications	2.0
Major expenditures:	
Bronx Zoo/Wildlife Conservation Park	24.9
International Conservation Program	8.9
City Wildlife Centers	8.9
Aquarium for Wildlife Conservation	6.9
Wildlife Conservation Magazine	3.5

New Construction

Bronx Zoo/Wildlife Conservation Park	\$4.1
City Wildlife Centers	3.3
Aquarium for Wildlife Conservation	1.0

345 Park Avenue
New York, NY 10154

Independent Auditors' Report

The Board of Trustees
Wildlife Conservation Society:

We have audited the accompanying balance sheet of Wildlife Conservation Society as of June 30, 1994, and the related statements of support and revenue, expenditures, capital additions and changes in fund balances, and cash flows for the year then ended. These financial statements are the responsibility of the Society's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with generally accepted auditing standards. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

As explained in note 2 to the financial statements, expenditures for land, buildings and equipment are not capitalized; therefore, depreciation of buildings and equipment is not recorded. The effect of this departure from generally accepted accounting principles on the financial statements is not readily determinable.

In our opinion, except for the effect on the financial statements of the matter discussed in the preceding paragraph, the financial statements referred to above present fairly, in all material respects, the financial position of Wildlife Conservation Society as of June 30, 1994, and the results of its operations and its cash flows for the year then ended in conformity with generally accepted accounting principles.

KPMG Peat Marwick LLP

October 28, 1994

TREASURER'S REPORT

Wildlife Conservation Society

BALANCE SHEET JUNE 30, 1994

ASSETS	Operating Funds	Endowment Funds
Cash, including interest-bearing amounts of \$4,162,147	\$ 7,558,544	-
Investments (note 3)	43,494,475	49,160,580
Accounts receivable	6,928,612	-
Grants and pledges receivable	9,742,250	-
Inventories, at lower of cost or market	513,908	-
Prepaid expenses and deferred charges	2,050,956	-
	<u>\$ 70,288,745</u>	<u>49,160,580</u>
LIABILITIES AND FUND BALANCES		
Accounts payable and accrued expenses	9,532,711	-
Deferred restricted support and revenue (note 6)	21,678,180	-
	<u>31,210,891</u>	<u>-</u>
Fund balances:		
Unrestricted:		
Designated for long-term investment	36,953,488	-
Undesignated	2,124,366	-
Endowment:		
Income restricted	-	18,890,370
Income unrestricted	-	30,270,210
	<u>39,077,854</u>	<u>49,160,580</u>
	<u>\$ 70,288,745</u>	<u>49,160,580</u>

TREASURER'S REPORT

Wildlife Conservation Society

STATEMENT OF SUPPORT AND REVENUE, EXPENDITURES, CAPITAL ADDITIONS AND CHANGES IN FUND BALANCE JUNE 30, 1994

	Operating funds			Endowment
	General	Capital	Total	funds
Operating support and revenue:				
Contributions and fund raising events, net	\$ 7,702,042	1,001,521	8,703,563	-
Wallace Fund (notes 6 and 10)	2,960,457	2,365,543	5,326,000	-
Government support:				
City of New York	17,786,866	2,372,629	20,159,495	-
State of New York	1,743,329	-	1,743,329	-
Federal sources	3,669,485	-	3,669,485	-
Admission fees	7,755,649	-	7,755,649	-
Exhibit admissions	1,936,603	-	1,936,603	-
Membership dues	2,850,719	-	2,850,719	-
Endowment and other investment income	2,560,186	52,047	2,612,233	-
Publications and related revenues	2,001,048	-	2,001,048	-
Education programs revenue	1,300,931	-	1,300,931	-
Collection sales (note 7)	-	9,794	9,794	-
Miscellaneous revenue	737,736	26,507	764,243	-
	53,005,051	5,828,041	58,833,092	-
Guest services (note 9)	8,939,809	-	8,939,809	-
Total operating support and revenue	61,944,860	5,828,041	67,772,901	-
Expenditures:				
Program services:				
Bronx Zoo/Wildlife Conservation Park	24,856,963	4,120,378	28,977,341	-
Aquarium for Wildlife Conservation	6,880,731	1,007,063	7,887,794	-
International Conservation	8,939,969	-	8,939,969	-
Wildlife Conservation Magazine	3,454,236	-	3,454,236	-
Membership activities	1,766,915	-	1,766,915	-
City Wildlife Centers (note 8)	8,939,540	3,286,431	12,225,971	-
Total program services	54,838,354	8,413,872	63,252,226	-
Supporting services:				
Management and general	\$ 4,631,852	-	4,631,852	-
Fund raising	2,994,900	-	2,994,900	-
Total supporting services	7,626,752	-	7,626,752	-
	62,465,106	8,413,872	70,878,978	-
Guest services (note 9)	5,169,261	-	5,169,261	-
Total expenditures	67,634,367	8,413,872	76,048,239	-
Utilization of prior years' appreciation (note 3)	1,907,794	11,883	1,919,677	-
Excess of expenditures over operating support and revenue and prior years' appreciation utilized, carried forward	(3,781,713)	(2,573,948)	(6,355,661)	-

(Continued)

TREASURER'S REPORT

Wildlife Conservation Society

STATEMENT OF SUPPORT AND REVENUE, EXPENDITURES, CAPITAL ADDITIONS AND CHANGES IN FUND BALANCE (CONTINUED)

	<u>Operating funds</u>			<u>Endowment funds</u>
	<u>General</u>	<u>Capital</u>	<u>Total</u>	
Excess of expenditures over operating support and revenue and prior years' appreciation utilized, brought forward	(3,781,713)	(2,573,948)	(6,355,661)	-
Bequests	532,266	-	532,266	-
Net appreciation (depreciation) on investments	(302,628)	763,506	460,878	-
Utilization of prior years' appreciation (note 3)	(719,318)	(11,883)	(731,201)	-
Excess of expenditures over support and revenue before capital additions	(4,271,393)	(1,822,325)	(6,093,718)	-
Capital additions:				
Contributions	-	-	-	2,562,316
Net depreciation on investments	-	-	-	(505,236)
Utilization of prior years' appreciation (note 3)	-	-	-	(1,188,476)
Total capital additions	-	-	-	868,604
Excess (deficiency) of support and revenue over expenditures after capital additions	\$ (4,271,393)	(1,822,325)	(6,093,718)	868,604
Fund balances at beginning of year	42,052,727	-	42,052,727	51,410,821
Term endowment expiration (note 4)	1,296,520	1,822,325	3,118,845	(3,118,845)
Fund balances at end of year	\$ 39,077,854	-	39,077,854	49,160,580

See accompanying notes to financial statements.

TREASURER'S REPORT

Wildlife Conservation Society

STATEMENT OF CASH FLOWS YEAR ENDED JUNE 30, 1994

ASSETS	Operating Funds	Endowment Funds
Cash flows from operating activities:		
Excess of expenditures over support and revenue		
after capital additions, and term endowment expiration	\$ (2,974,873)	(2,250,241)
Adjustments to reconcile excess of expenditures over		
support and revenue after capital additions, and term		
endowment expiration to net cash used in operating activities:		
Net (appreciation) depreciation on investments	(460,878)	505,236
Increase in accounts receivable	(2,304,404)	-
Decrease in grants and pledges receivable	153,380	-
Decrease in inventories	45,679	-
Decrease in prepaid expenses and deferred charges	141,015	-
Increase in accounts payable and accrued expenses	557,071	-
Decrease in deferred restricted support and revenue	(2,032,159)	-
Total adjustments	(3,900,296)	505,236
Net cash used in operating activities	(6,875,169)	(1,745,005)
Cash flows from investing activities:		
Proceeds from sales of investments	9,987,657	75,288,440
Purchases of investments	(2,292,483)	(73,543,435)
Net cash provided by investing activities	7,695,174	1,745,005
Net increase in cash	820,005	-
Cash at beginning of year	6,738,539	-
Cash at end of year	\$ 7,558,544	-

See accompanying notes to financial statements.

Wildlife Conservation Society

NOTES TO FINANCIAL STATEMENTS JUNE 30, 1994

(1) The Organization

The accompanying financial statements present the financial position, results of operations and cash flows of New York Zoological Society (NYZS) which is incorporated in New York State and exempt from Federal income taxes under Section 501(c)(3) of the Internal Revenue Code. Effective June 8, 1994, NYZS filed a Certificate of Assumed Name with the New York State Department of State under which it will use the name Wildlife Conservation Society (the Society).

(2) Summary of Significant Accounting Policies

The financial statements of the Society have been prepared on the accrual basis, except for depreciation as explained below. Other significant accounting policies follow:

Fund Accounting

In order to ensure observance of limitations and restrictions placed on the use of available resources, the accounts are maintained in accordance with the principles of fund accounting. This is the procedure by which resources for various purposes are classified for accounting and reporting purposes into funds established according to their nature and purposes. Separate accounts are maintained for each fund; however, in the accompanying financial statements, funds that have similar characteristics have been combined into fund groups.

The assets, liabilities and fund balances of the Society are reported in two self-balancing fund groups:

Operating funds, which include unrestricted and restricted resources:

- Unrestricted funds represent the funds available for the support of Society operations.
- Funds restricted by the donor, grantor, or other outside party for particular operating purposes (including accessions and other capital additions) are deemed to be earned and reported as revenues of operating funds when the Society has incurred expenditures in compliance with the specific restrictions. Such amounts received but not yet earned are reported as deferred restricted support and revenue.

Endowment funds, which include the following resources:

- Funds that are subject to restrictions of gift instruments requiring in perpetuity that the principal be invested and only the income be used.
- Term endowment funds which must be held intact except that, at some future date or specified occurrence, some portion or all of the principal may be used (see note 4).

Plant Assets and Depreciation

Plant acquisitions including buildings and improvements constructed on land owned by the City of New York are not capitalized and, accordingly, depreciation is not recorded in the Society's financial statements. Major expenditures for buildings and improvements are reflected as capital expenditures in the accompanying financial statements.

Collections

Expenditures for collections are not capitalized.

Other Matters

All gains and losses arising from investment transactions and the sale or exchange of other noncash assets are accounted for in the fund that owned the assets. Ordinary income from investments, receivables, and the like, is accounted for in the fund owning the assets, except for income derived from investments of endowment funds, which is accounted for, if unrestricted, as revenue of the unrestricted operating fund or, if restricted, as deferred revenue until the terms of the restriction have been met.

Enforceable pledges for operating purposes, less an allowance for uncollectible amounts, are recorded as receivables in the year made. Pledges for support of current operations are recorded as operating fund support. Pledges for support of future operations are recorded as deferred support in the operating funds. Pledges to the endowment funds are recognized upon payment of the pledge.

(3) Investments

Investments are accounted for on a market value basis. The net appreciation (depreciation) on investments reflected in the accompanying statement of support and revenue, expenditures, capital additions and changes in fund balances includes realized gains and unrealized appreciation (depreciation) in market value. The market value and historical cost of investments managed by the Society at June 30, 1994 were as follows:

	<u>Market value</u>	<u>Cost</u>
Operating funds	\$ 43,494,475	34,698,718
Endowment funds	49,160,580	38,668,134
Wallace Fund*	58,487,702	58,837,753
	<u>\$ 151,142,757</u>	<u>132,204,605</u>

* The accompanying balance sheet does not include these investments which are managed by the Society on behalf of the Lila Acheson Wallace Fund for the New York Zoological Society (Wallace Fund) (see note 10).

Details of investments and pooled net assets managed by the Society at June 30, 1994 were as follows:

	<u>Market value</u>	<u>Cost</u>
Short-term		
investments	\$ 20,531,157	20,702,434
Corporate stocks	82,783,510	61,999,157
U.S. Government		
obligations	47,828,090	49,503,014
Total investments	151,142,757	132,204,605
Net interfund payables	<u>(6,540,987)</u>	<u>(6,540,987)</u>
Pooled net assets	<u>\$ 144,601,770</u>	<u>125,663,618</u>

Investments are pooled on a market value basis with each individual fund subscribing to or disposing of units on the basis of the market value per unit, determined quarterly. Of the total units, each having a market value of \$323.65, 151,893 units were owned by the endowment funds, 114,177 units were owned by the operating funds and 180,712 units were owned by the Wallace Fund at June 30, 1994. The average earnings per unit, exclusive of net gains, amounted to \$9.15 for the year ended June 30, 1994.

The Society's investments are managed to maximize long-term total return. The Board of Trustees has

authorized a policy permitting the use of total return at a rate (spending rate) of up to 5% of the average market value of its endowment funds and funds designated for long-term investment for the most recent three years. This policy is designed to preserve the value of these funds in real terms (after inflation) and provide a predictable flow of funds to support operations. Should interest and dividend income be less than the Board authorized spending level, current year's appreciation of investments, if any, is used to meet such shortfall. If the current year's appreciation is not sufficient to satisfy the shortfall, prior years' appreciation is appropriated to support operations. To the extent that prior years' appreciation is appropriated, it is reported as operating support and as a non-operating deduction from endowment funds and funds designated for long-term investment, as appropriate. During the year ended June 30, 1994, utilization of prior years' gains amounted to \$731,201 and \$1,188,476 from funds designated for long-term investments and endowment funds, respectively.

(4) Term Endowment (Animal Kingdom Fund)

During 1976, the Society initiated a capital funds campaign. The campaign included a term endowment fund to serve various functions, as described below, subject to the following conditions:

- (a) The income of the term endowment fund shall be used for the general operating purposes of the Society; and
- (b) The principal of the term endowment fund may be expended only upon the affirmative vote of two-thirds of the Trustees present at any duly held meeting of the Board of Trustees or its Executive Committee: (i) to finance programs or improvements to facilities (i.e., the conservation centers and other facilities of the Society) to produce revenue or increase attendance; or (ii) to ensure the survival of the Society if funds from other sources fail to provide sufficient revenue to maintain the Society's programs; provided, however, that in the case of any contribution to the term endowment fund which was subject to a restriction not to expend the principal of such contribution without the prior consent of the donor thereof, in addition to the vote of the Trustees described above, such consent must be obtained in writing prior to the expenditure of such principal. During 1994, the Society transferred the remaining term endowment funds aggregating \$3,118,845 to operating funds.

(5) Retirement Benefits

All eligible Society employees are members of the Cultural Institutions Retirement System's (CIRS) Pension Plan, a defined benefit plan. Pension expense for the year ended June 30, 1994 was approximately \$1,018,000. The current year's provision includes amortization of prior service costs over a period of 30 years which commenced June 30, 1974. The Society's policy is to fund pension cost accrued.

Because the CIRS Pension Plan is a multi-employer plan, certain information with respect to vested and nonvested benefits as well as plan assets relating to Society employees is not readily available.

In addition to providing pension benefits, the Society provides certain health care benefits for retired employees. Substantially all of the Society's employees may become eligible for those benefits if they reach normal retirement age while working for the Society. The cost of retiree health care benefits is recognized as expense as claims are paid. For the year ended June 30, 1994, those costs totaled approximately \$160,000.

In December 1990, the Financial Accounting Standards Board (FASB) issued Statement of Financial Accounting Standards No. 106, "Employers' Accounting for Postretirement Benefits Other Than Pensions." Under Statement 106, the cost of postretirement benefits other than pensions must be recognized on an accrual basis as employees perform

services to earn benefits. The provisions of Statement 106 will be effective for the Society for the fiscal year ending June 30, 1996. The Society has not yet determined the impact of Statement 106 on its financial statements.

(6) Deferred Restricted Support and Revenue

The changes in deferred restricted support and revenue for the year ended June 30, 1994 were as follows in Figure 1.

(7) Collections

During the year ended June 30, 1994 animal collection accessions aggregated approximately \$131,000 while deaccessions aggregated approximately \$10,000.

(8) City Wildlife Conservation Centers

The Society and the City of New York have entered into agreements with respect to the Central Park, Prospect Park and Queens Wildlife Conservation Centers. These agreements provide for the City's renovation of these facilities in accordance with plans developed through consultation with the Society and approved by the City and, thereafter, for the Society's operation and management with funding from the City, for an initial ten-year term, renewable by the Society for five additional ten-year terms.

(9) Guest Services

General operating fund revenues and expenditures of guest services (consisting of food, merchandise
(Continued)

Figure 1

	Balance at beginning of year	Additions	Expenditures	Balance at end of year
Contributions, bequests and fund raising events	\$ 14,788,719	6,102,554	6,562,342	14,328,931
Wallace Fund	2,947,592	5,326,000	5,326,000	2,947,592
Fees and grants from governmental agencies	3,675,398	5,071,334	5,973,398	2,773,334
Investment income	1,046,934	1,776,245	1,708,772	1,114,407
Net gains on investment transactions	1,018,275	-	781,610	236,665
Term endowment	-	1,822,325	1,822,325	-
Other	233,421	754,092	710,262	277,251
Total	\$ 23,710,339	20,852,550	22,884,709	21,678,180

TREASURER'S REPORT

sales and parking) for the year ended June 30, 1994 were as follows:

	<u>Revenues</u>	<u>Expenditures</u>
Bronx Zoo/Wildlife		
Conservation Park	\$ 6,584,819	4,180,294
Aquarium for Wildlife		
Conservation	1,963,367	988,967
City Wildlife		
Conservation		
Centers *	391,623	-
	<u>\$ 8,939,809</u>	<u>5,169,261</u>

* Guest service operations at the Central Park, Prospect Park, and Queens Wildlife Conservation Centers have been contracted to independent vendors who make remittances to the Society based upon sales.

(10) Lila Acheson Wallace Fund for the New York Zoological Society (Wallace Fund)

The Wallace Fund was established for the benefit of the New York Zoological Society in 1982. It is governed by an independent Board of Directors, including representatives of The Reader's Digest Association, Inc. and of the Society. It is a separate New York not-for-profit corporation that has been classified by the Internal Revenue Service as a supporting organization under Section 509(a)(3) of the Internal Revenue Code (the Code) and recognized as tax exempt under Section 501(c)(3) of the Code.

In March 1991, the Wallace Fund entered into an investment delegation agreement with the Society pursuant to which the Society's investment committee assumed management of certain Wallace Fund assets which participate in the Society's pooled investment fund (see note 3).

Income of the Wallace Fund is granted each year to support the beautification and maintenance of the Central Park Wildlife Conservation Center and Bronx Zoo/Wildlife Conservation Park, and such other programs as may be agreed upon by the Society and Directors of the Wallace Fund. The Wallace Fund granted \$5,326,000 to the Society during fiscal 1994.

As of June 30, 1994, the market value of the net assets of the Wallace Fund, including amounts managed by the Society, approximated \$180,768,000.

(11) Related Party Transactions

The Society is the sole member of a not-for-profit corporation which was organized in 1989 for the purpose of acquiring, operating, and holding for investment certain residential real estate located in New York and offered for rent to employees of the Society. The Society has made cumulative contributions to this corporation of \$4,450,000, including \$250,000 in 1994, which were used by the corporation in connection with the purchase of residential real estate.

Contributions, Pledges, and Payments on Pledges of \$1,000 and More

(July 1, 1993 to June 30, 1994)

BEST FRIENDS

(Cumulative lifetime gifts
of \$1 million or more)

Mr. and Mrs. Rand V. Araskog
Mrs. Vincent Astor
George F. Baker III
Liz Claiborne and Art Ortenberg
Enid A. Haupt
John R. Hearst, Jr.
The Irwin Family
Betty Wold Johnson and Douglas Bushnell
Robert Wood Johnson IV
Mr. and Mrs. Frank Y. Larkin
Dr. Martin Nash
Anne Pattee
Mr. and Mrs. Gordon B. Pattee
Mr. and Mrs. Milton Petrie
Mr. and Mrs. Howard Phipps, Jr.
Mary and Laurance S. Rockefeller
Marcia Rubin
The Schiff Family
Mrs. Richard B. Tweedy
Sue Erpf Van de Bovenkamp

BENEFACTORS

(Cumulative lifetime gifts
of \$250,000 to \$999,999)

Mr. and Mrs. Russell B. Aitken
Mr. and Mrs. Frederick W. Beinecke
Guy Cary
Mrs. John Culbertson
Mr. and Mrs. Edgar Cullman
Mr. and Mrs. John Elliott, Jr.
Dr. and Mrs. Henry Clay Frick II
Mrs. Roswell Gilpatric
Mr. and Mrs. Robert G. Goellet
Mr. and Mrs. Bradley L. Goldberg
Mr. and Mrs. Alexander S. Haig
Mr. and Mrs. Martin Lipton
Edith McBean Newberry
Mrs. Richard S. Perkin
Mr. and Mrs. Julian H. Robertson, Jr.
Mr. and Mrs. Howard Sloane
Dr. Judith P. Sulzberger
Mrs. Joseph A. Thomas
Charlotte Wyman
1 anonymous donor

CHAIRMEN CIRCLE

(Annual gifts of \$25,000 or more to
one or more divisions of the Society,
including Friends of Wildlife
Conservation and Annual Patrons)

George F. Baker III
Mr. and Mrs. Frederick W. Beinecke
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HISTORY

The Society was founded in 1895 as the New York Zoological Society and chartered in the State of New York on April 26 of that year "to establish and maintain in said city a zoological garden for the purpose of encouraging and advancing the study of zoology; original researches in the same and kindred subjects, and of furnishing instruction and recreation to the people." The 265-acre New York Zoological Park (Bronx Zoo) opened to the public on November 8, 1899, built and maintained with funds provided by the City of New York and private citizens. The Society assumed operation of the New York Aquarium in Battery Park in 1902, the Central Park Wildlife Center in 1988, the Queens Wildlife Center in 1992, and the Prospect Park Wildlife Center in 1993. The present Aquarium was opened in Brooklyn in 1957.

In 1897, the Society sponsored its first field project, a study of wildlife in Alaska and British Columbia. Since then the Society has helped establish more than 100 wildlife parks and reserves around the world, and we now conduct 270 field conservation projects in 51 nations. The world's first zoo animal hospital was built at the Bronx Zoo in 1916 and the first formal zoo education department was organized at the Zoo in 1929. This program now reaches 1.2 million schoolchildren in the New York metropolitan area and school systems in 42 states and abroad.

OPERATING EXPENSES

Operating Budget	\$67,634,367
Government Support	36%
Visitor Support	29%
Private Support	21%

ATTENDANCE AT WILDLIFE CONSERVATION SOCIETY FACILITIES

Bronx Zoo	1,816,749
JungleWorld	620,901
Children's Zoo	425,153
World of Reptiles	669,646
World of Darkness	552,777
Zoo Shuttle	334,811
Bengali Express	405,277
Skfari	385,783
Camel Rides	90,094
Aquarium for Wildlife Conservation	794,106
Central Park Wildlife Center	768,115
Queens Wildlife Center	180,617
Prospect Park Wildlife Center (since October 1993)	206,828
Total WCS Attendance	3,766,415

MEMBERSHIP AND MAGAZINE

Members:	
Metropolitan Area	47,421
National	12,815
Wildlife Conservation Circulation	205,989

ENVIRONMENTAL EDUCATION PROGRAM

Attendance in Paid and Free Programs	1,210,288
Bronx Zoo:	
Students	
in Organized Groups	369,457
Course Enrollment	26,512
Friends of Wildlife Conservation	265
Aquarium for Wildlife Conservation:	
Students	
in Organized Groups	242,324
Course Enrollment	48,000
Volunteers and Interns	262
Central Park Wildlife Center:	
Students in School Programs	3,431
General Course Enrollment	699
Volunteers	120
Queens Wildlife Center:	
Students in School Programs	1,200
General Course Enrollment	300
Volunteers	28
Prospect Park Wildlife Center:	
Students in School Programs	4,524
General Course Enrollment	290
Volunteers	40

ANIMAL CENSUSES

BRONX ZOO	3,955 animals of 543 species
AQUARIUM FOR WILDLIFE CONSERVATION	3,699 animals of 336 species
BRONX ZOO CHILDREN'S ZOO	400 animals of 90 species
ST. CATHERINES WILDLIFE SURVIVAL CENTER	398 animals of 55 species
CENTRAL PARK WILDLIFE CENTER	626 animals of 102 species
QUEENS WILDLIFE CENTER	285 animals of 49 species
PROSPECT PARK WILDLIFE CENTER	261 animals of 61 species

BIRTHS AND HATCHINGS

Bronx Zoo	1,216
Bronx Zoo Children's Zoo	37
St. Catherines Wildlife Survival Center	68
Central Park Wildlife Center	175
Queens Wildlife Park	36
Prospect Park Wildlife Center	32

WILDLIFE PARKS AND RESERVES

The Society's work in the field resulted in the establishment of two wildlife parks during the year:

NOUABALÉ-NDOKI NATIONAL PARK, CONGO REPUBLIC	1,500 square miles
CRATER MOUNTAIN WILDLIFE MANAGEMENT AREA, PAPUA NEW GUINEA	1,000 square miles

LEADERSHIP POSITIONS IN WILDLIFE CONSERVATION

Curators, keepers, field biologists, veterinarians, and other scientists of the Wildlife Conservation Society participate widely in the collaborative wildlife conservation efforts of the American Zoo and Aquarium Association (AZA), which represents 167 accredited zoos and aquariums in North America, and the World Conservation Union (IUCN), a global network of governmental and non-governmental conservation organizations. Below are listed Society staff who serve as officers in the work being performed by the AZA and the IUCN.

AMERICAN ZOO AND AQUARIUM ASSOCIATION (AZA)

Field Conservation Committee: William Conway, *Chairman*.

Species Survival Plan (SSP) Coordinators: Lowland gorilla, Dan Wharton; Asian wild horse, Patrick Thomas; Snow leopard, Dan Wharton; Sumatran rhinoceros, James G. Doherty; White-naped crane, Christine Sheppard; St. Vincent parrot, Don Bruning; Congo peafowl, Don Bruning; Mauritius pink pigeon, Kurt Hundgen; Chinese alligator, John Behler; Radiated tortoise, William Holmstrom.

SSP Studbook Keepers: Lowland gorilla, Dan Wharton; White-naped crane, Christine Sheppard; African pygmy goose, Douglas Pickarz; Scarlet ibis, Anna Marie Lyles; Waldrapp ibis, Mark Hofling; St. Vincent's parrot, Don Bruning; Malayan peacock pheasant, Don Bruning; Rothschild's mountain peacock, Don Bruning; Mauritius pink pigeon, Kurt Hundgen; Chinese alligator, John Behler; Common anaconda, William Holmstrom; Radiated tortoise, William Holmstrom.

Taxon Advisory Group (TAG) Chairmen or Co-Chairmen: Deer, James G. Doherty; Marsupials and Monotremes, Dan Wharton; Old World monkeys, Fred Koontz; Cranes, Christine Sheppard; Ducks and geese, Eugene Von Kment; Herons, ibis, and hamerkop, Anna Marie Lyles; Hornbills, Christine Sheppard; Parrots, Don Bruning; Crocodilians, Peter Brazaitis; Freshwater fishes, Paul Loiselle.

THE WORLD CONSERVATION UNION (IUCN)

Sustainable Use Initiative of the Species Survival Commission: John G. Robinson, *Chairman*.

Pigs and Peccaries Specialist Group: Andrew Taber, *Deputy Chairman*.

Hornbill Specialist Group: Christine Sheppard, *Secretary*.

Tortoise and Freshwater Turtle Specialist Group: John Behler, *Chairman*; Michael Klemens, *Action Plan Director*.

Credits

Design: Doherty & Doherty Graphic Design

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Photography: John Behler, 7 (lower right), 11 (top left); Annette Berkovits, 21 (bottom), 23; David Berkovits, 20, 28, 29 (lower right); Susan Chin, 5, 16; Suzanne DeChillo/NYT Pictures, 15; Dennis DeMello/Wildlife Conservation Society, 7 (lower left), 8-9, 11 (lower right), 12, 13, 18, 19, 26 (top left), 44 (middle left), 45 (top), 47 (top and middle right, top and lower left), 50 (left), 54 (2); Susan Elbin, 9; David Gillison, 36; Alejandro Grajal, 30 (left), 34 (right); Jamie James, 31 (right), 37; Merryl Kafka, 25 (lower right); Margaret Kinnaird and Tim O'Brien, 39, 40; James McGoon, cover, 7 (top right), 24; Bill Meng/Wildlife Conservation Society, 7 (middle left), 8, 10, 22, 26 (lower right), 44 (top and bottom), 50 (right), 52, 53 (2); Patricia Moehlman, 33; Hillary Morland, 32; Vicente Murphy, 30 (right), 35 (top left); Michael Nichols, 3, 21 (top), 25 (top left), 31 (left), 32-33; Tim O'Sullivan, 46 (bottom); John Sotomayer/NYT Pictures, 17; Mark Testa, 7 (top left), 27 (top left); University of Florida, Departments of Landscape Architecture, Urban and Regional Planning, and Civil Engineering, 34; Thomas Veltre, 44 (middle right), 45 (bottom); Eric Weiss, 46 (top left and right); Art Wolfe, 35 (lower right), 48; Lisa Zidek, 7 (middle right), 14.

A copy of this annual report may be obtained by writing to the New York Department of State, Office of Charities Registration, 162 Washington Avenue, Albany, New York 12231, or to the Wildlife Conservation Society, Office of the Chairman, Bronx Zoo, Bronx, New York 10460.

Recommended Form of Bequest

The Trustees of the Society recommend that for estate planning purposes, members and friends consider the following language for use in their wills: "To the Wildlife Conservation Society, a not-for-profit, tax-exempt membership organization incorporated in the State of New York in 1895, having as its principal address the Bronx Zoo, Bronx, New York 10460, I hereby give and bequeath _____ for the Society's general purposes."

In order to help the Society avoid future administration costs, it is suggested that the following paragraph be added to any restrictions that are imposed on a bequest: "If at some future time, in the judgment of the Trustees of the Wildlife Conservation Society, it is no longer practical to use the income or principal of this bequest for the purposes intended, the Trustees have the right to use the income or principal for whatever purposes they deem necessary and most closely in accord with the intent described herein."

If you wish to discuss the language of your bequest with a member of the Society's staff, please be in touch with the President's office (212) 220-5115.

Howard Phipps, Jr.
Chairman of the Board of Trustees



Wildlife Conservation Society

Bronx Zoo 185th Street and Southern Boulevard Bronx, New York 10460